INDEX TO DATE OF ISSUE

Month	Date of Issue	Pages
January	8 January 1976	1–297
February	3 February 1976	299–677
March	22 March 1976	679–1068

Volume 17

Contents for January

Number 1

Animal Viruses

Inhibition of Cellular Protein Synthesis by Simultaneous Pretreatment of Host Cells with Fowl Plague Virus and Actinomycin D: a Method for Studying Early Protein Synthesis of Several RNA Viruses. G. KALUZA,* A. A. KRAUS, AND R. ROTT 1

Protein Synthesis in BHK-21 Cells Infected with Semliki Forest Virus. GERD WENGLER* AND GISELA WENGLER 10

Strand-Specific Transcription of Polyoma Virus DNA Early in Productive Infection and in Transformed Cells. PETER BEARD,* NICHOLAS H. ACHESON, AND IAN H. MAXWELL 20

Induction of Interferon and Erythropoietic Differentiation in Cells Transformed by Friend Virus. PETER SWETLY 27

5'-Terminal Sequence of Vesicular Stomatitis Virus mRNA's Synthesized In Vitro. DENNIS P. RHODES AND AMIYA K. BANERJEE* 33

Quantitative Analysis of the Rescue of RNA Sequences by Mammalian Type C Viruses. ROBERT J. GOLDBERG,* REUVEN LEVIN, WADE P. PARKS, AND EDWARD M. SCOLNICK 43

Species and Interspecies Radioimmunoassays for Rat Type C Virus p30: Interviral Comparisons and Assay of Human Tumor Extracts. HOWARD P. CHARMAN,* MARTIN H. WHITE, RUKHSANA RAHMAN, AND RAYMOND W. GILDEN 51

Evidence for an "Early Early" Vaccinia Virus-Induced Protein Which Causes a Density Change of Infected L-M Cells. FREDERICK R. BALL* AND EDWARD L. MEDZON 60

Comparison of RNA Polymerase Associated with Newcastle Disease Virus and a Temperature-Sensitive Mutant of Newcastle Disease Virus Isolated from Persistently Infected L Cells. TREVOR L. STANWICK* AND J. V. HALLUM .. 68

High Spontaneous Mutation Rate of an Avian Sarcoma Virus. DAVID A. ZARLING AND HOWARD M. TEMIN* 74

Virus-Dependent Glycosylation. BARTHOLOMEW M. SEFTON 85

Ribonucleotide Sequence Homology Among Avian Oncornaviruses. M. SHOYAB AND M. A. BALUDA* 106

Viral RNA Synthesis and Levels of DNA-Dependent RNA Polymerases During Replication of Adenovirus 2. R. WEINMANN, J. A. JAEHNING, H. J. RASKAS, AND R. G. ROEDER* 114

Origin of the Polyoma Virus-Associated Endonuclease. JANIS MCMILLEN, MELVIN S. CENTER, AND RICHARD A. CONSIGLI* 127

Reactivity of Avian RNA Tumor Viruses with Lectins. RYOTARO ISHIZAKI AND DANI P. BOLOGNESI* 132

DNA-Minus Temperature-Sensitive Mutants of Adenovirus Type 5 Help Adenovirus-Associated Virus Replication. STEPHEN E. STRAUS, HAROLD S. GINSBERG, AND JAMES A. ROSE* 140

5' Nucleotide Sequence of Sindbis Viral RNA. ELISABETH HEFTI, D. H. L. BISHOP, D. T. DUBIN, AND V. STOLLAR* 149

Comparison of an Avian Osteopetrosis Virus with an Avian Lymphomatosis Virus by RNA-DNA Hybridization. RALPH E. SMITH,* LINDA J. DAVIDS, AND PAUL E. NEIMAN 160

* Asterisk refers to person to whom inquiries regarding the paper should be addressed.

Synthesis of Long, Representative DNA Copies of the Murine RNA Tumor Virus Genome. ELLEN ROTHENBERG AND DAVID BALTIMORE* 168

Kinetics of Cell Fusion Induced by a Syncytia-Producing Mutant of Herpes Simplex Virus Type I. STANLEY PERSON,* ROBERT W. KNOWLES, G. SULLIVAN READ, SUSAN C. WARNER, AND VINCENT C. BOND 183

Interferon Treatment of Ehrlich Ascites Tumor Cells: Effects on Exogenous mRNA Translation and tRNA Inactivation in the Cell Extract. G. C. SEN, S. L. GUPTA, G. E. BROWN, B. LEBLEU, M. A. REBELLO, AND P. LENGYEL* 191

Chromatin-Like Structures in Polyoma Virus and Simian Virus 40 Lytic Cycle. CHANTAL CREMISI, PIER FRANCO PIGNATTI, ODILE CROISSANT, AND MOSHE YANIV* 204

Orientation of the Complementary Strands of Polyoma Virus DNA with Respect to the DNA Physical Map. ROBERT KAMEN,* JOHN SEDAT, AND EDWARD ZIFF 212

Induction of Type C Virions from Normal Rat Kidney Cells by 2-Deoxy-D-Glucose. EDWARD V. PROCHOWNIK, SANDRA PANEM, AND WERNER H. KIRSTEN 219

Restriction Enzyme Digests of Rapidly Renaturing Fragments of Vaccinia Virus DNA. FRANK M. DEFILIPPES 227

Growth of Enveloped RNA Viruses in a Line of Chinese Hamster Ovary Cells with Deficient *N*-Acetylglucosaminyltransferase Activity. SONDRA SCHLESINGER, CHARLENE GOTTLIEB, PAUL FEIL, NANCY GELB, AND STUART KORNFELD* 239

Transformation of Hamster Kidney Cells by BK Papovavirus DNA. KENNETH K. TAKEMOTO* AND MALCOLM A. MARTIN 247

Replication of a Nuclear Polyhedrosis Virus in a Continuous Cell Culture of *Spodoptera frugiperda*: Microscopy Study of the Sequence of Events of the Virus Infection. D. L. KNUDSON* AND K. A. HARRAP 254

Studies on Morphological Transformation of BALB/3T3-Derived Clones by Murine Leukemia Virus. HELENE S. SMITH,* ADELINE J. HACKETT, E. LOUISE SPRINGER, AND JOHN RIGGS 269

Identification of a Precursor Protein to the Major Glycoproteins of Mouse Mammary Tumor Virus. C. DICKSON,* J. P. PUMA, AND S. NANDI 275

Differential Inhibition of Vesicular Stomatitis Virus Polypeptide Synthesis by Hypertonic Initiation Block. DONALD L. NUSS* AND GEBHARD KOCH 283

Rapid Purification of 70S RNA from Media of Cells Producing RNA Tumor Viruses. R. GUY SMITH,* L. DONEHOWER, R. C. GALLO, AND D. H. GILLESPIE* 287

In Vitro Transcription of 70S RNA by the RNA-Directed DNA Polymerase of Rous Sarcoma Virus: Lack of Influence of RNase H. MARC S. COLLETT AND ANTHONY J. FARAS* 291

Bacterial Viruses

T7 Protein Synthesis in F-Factor-Containing Cells: Evidence for an Episomally Induced Impairment of Translation and Its Relation to an Alteration in Membrane Permeability. DAPHNE D. BLUMBERG, CHERYL T. MABIE, AND MICHAEL H. MALAMY* 94

Replication and Recombination of Gene 59 Mutant of Bacteriophage T4D. D. B. SHAH 175

Molecular Weights of DNA from Bacteriophages T5, T5*st*(0), BF23, and BF23*st*(4). DIMITRIJ LANG,* ALAN R. SHAW, AND D. JAMES MCCORQUODALE 296

Volume 17

Contents for February

Number 2

Animal Viruses

Rat Sequences of the Kirsten and Harvey Murine Sarcoma Virus Genomes: Nature, Origin, and Expression in Rat Tumor RNA. GARTH R. ANDERSON* AND KEITH C. ROBBINS 335

Endonucleases and Simian Virus 40 Virions: Origin of a Virion-Associated Endonuclease. DOUGLAS C. DOOLEY, MARIA T. RYZLAK, AND HARVEY L. OZER* 352

Polypeptides of Mumps Virus. STEPHEN C. JENSIK* AND SANDRA SILVER 363

Comparisons of the Immunological Properties of Two Structural Polypeptides of Type C RNA Viruses Endogenous to Old World Monkeys. JOHN R. STEPHENSON, ROBERTA K. REYNOLDS, AND STUART A. AARONSON* 374

Sequence of Methylated Nucleotides at the 5′-Terminus of Adenovirus-Specific RNA. BERNARD MOSS* AND FRANK KOCZOT 385

Rate of Virus-Specific RNA Synthesis in Synchronized Chicken Embryo Fibroblasts Infected with Avian Leukosis Virus. ERIC H. HUMPHRIES* AND JOHN M. COFFIN 393

DNA Synthesis in Polyoma Virus Infection. IV. Mechanism of Formation of Closed-Circular Viral DNA Deficient in Superhelical Turns. KENNETH YU AND WILLIAM P. CHEEVERS* 402

DNA Synthesis in Polyoma Virus Infection. V. Kinetic Evidence for Two Requirements for Protein Synthesis During Viral DNA Replication. KENNETH YU AND WILLIAM P. CHEEVERS* 415

Lack of Infectivity of the Endogenous Avian Leukosis Virus-Related Genes in the DNA of Uninfected Chicken Cells. GEOFFREY M. COOPER AND HOWARD M. TEMIN* 422

Growth and Genetic Stability of the *ts*-1 Mutant of Respiratory Syncytial Virus at Restrictive Temperatures. THOMAS J. SCHNITZER, LINDA S. RICHARDSON, AND ROBERT M. CHANOCK* 431

Purification and Characterization of Mouse Interferon with Novel Affinity Sorbents. MARY W. DAVEY, EUGENE SULKOWSKI, AND WILLIAM A. CARTER* .. 439

Effect of Medium of Lowered NaCl Concentration on Virus Release and Protein Synthesis in Cells Infected with Reticuloendotheliosis Virus. J. MARSHALL BISHOP, REYNALDO L. MALDONADO, ROBERT F. GARRY, PATTON T. ALLEN, HENRY R. BOSE, AND MARILYNN R. F. WAITE* 446

Inhibition of Friend Murine Leukemia Virus Production by Low-Ionic-Strength Medium. MICHAEL A. USSERY,* RUBEN RAMIREZ-MITCHELL, AND BOYD A. HARDESTY 453

Genetic Analysis of Adenovirus Type 2. III. Temperature Sensitivity of Processing of Viral Proteins. JOSEPH WEBER 462

Characterization and Translation of Methylated and Unmethylated Vesicular Stomatitis Virus mRNA Synthesized In Vitro by Ribonucleoprotein Particles from Vesicular Stomatitis Virus-Infected L Cells. FRANCES TONEGUZZO AND HARA P. GHOSH* 483

Anatomy of Herpes Simplex Virus DNA. V. Terminally Repetitive Sequences. S. WADSWORTH, G. S. HAYWARD, AND B. ROIZMAN* 503

Persistent Reovirus Infection of CHO Cells Resulting in Virus Resistance. ROBERT TABER,* VERONICA ALEXANDER, AND WILLIAM WHITFORD 513

Genomic Complexities of Murine Leukemia and Sarcoma, Reticuloendotheliosis, and Visna Viruses. KAREN L. BEEMON,* ANTHONY J. FARAS, ASHLEY T.

HAASE, PETER H. DUESBERG, AND JAN E. MAISEL 525

Hydrodynamic Diameters of Murine Mammary, Rous Sarcoma, and Feline Leukemia RNA Tumor Viruses: Studies by Laser Beat Frequency Light-Scattering Spectroscopy and Electron Microscopy. IRVING SALMEEN,* LAJOS RIMAI, RONALD B. LUFTIG, LEONARD LIEBES, ERNEST RETZEL, MARVIN RICH, AND J. JUSTIN MCCORMICK 584

High-Titer Replication of Nondefective Sendai Virus in MDBK Cells. NANCY G. FAMULARI AND ERWIN FLEISSNER* 597

Kinetics of Utilization of Sendai Virus RNA and Protein in the Process of Virion Assembly. NANCY G. FAMULARI AND ERWIN FLEISSNER* 605

Simian Virus 40 DNA Replication: Characterization of Gaps in the Termination Region. MICHAEL C. Y. CHEN, EDWARD BIRKENMEIER, AND NORMAN P. SALZMAN* 614

Replication Process of the Parvovirus H-1. V. Isolation and Characterization of Temperature-Sensitive H-1 Mutants Defective in Progeny DNA Synthesis. SALON L. RHODE III 659

Immunocytochemical Localization of Simian Virus 40 T Antigen with Peroxidase-Labeled Antibody Fragments. KAZUO TABUCHI, JOHN M. LEHMAN, AND WOLFF M. KIRSCH* 668

Characterization of Epstein-Barr Virus Antigens. I. Biochemical Analysis of the Complement-Fixing Soluble Antigen and Relationship with Epstein-Barr Virus-Associated Nuclear Antigen. GILBERT LENOIR,* MARIE-CLAUDE BERTHELON, MARIE-CLAUDE FAVRE, AND GUY DE-THÉ 672

Bacterial Viruses

Recovery of the Accumulation Ability of Thiomethyl-β-Galactoside in *Escherichia coli* After Bacteriophage T4 Infection. N. SAIJO AND KOJI OKAMOTO* 299

Effect of the "RNA Control" Locus in *Escherichia coli* on RNA Bacteriophage R23 Replication. JAN ERNBERG* AND OLA SKÖLD 307

Isoaccepting Species of Serine tRNA Coded by Bacteriophage T5st0. G. HENCKES, O. PANAYOTAKIS, AND T. HEYMAN* 316

Bacteriophage T4-Induced Shut-Off of Host-Specific Translation. STEFAN B. SVENSON* AND OLLE H. KARLSTRÖM 326

Virus-Like Particles from Killer, Neutral, and Sensitive Strains of *Saccharomyces cerevisiae*. J. ADLER,* H. A. WOOD, AND R. F. BOZARTH 472

Induction of Prophage SPO2 in *Bacillus subtilis*: Isolation of Excised Prophage DNA as a Covalently Closed Circle. FRÉ ARWERT, GUNNAR BJURSELL, AND LARS RUTBERG* 492

Level of Specific Prereplicative mRNA's During Bacteriophage T4 *regA*$^-$,43$^-$ and T4 43$^-$ Infection of *Escherichia coli* B. ROBERT B. TRIMBLE* AND FRANK MALEY 538

Bacteriophage T4 Head Morphogenesis. VII. Terminal Stages of Head Maturation. DANIEL L. HAMILTON AND RONALD B. LUFTIG* 550

Isolation and Characterization of *Caulobacter crescentus* Bacteriophage φCd1. DAVID WEST, CARL LAGENAUR, AND NINA AGABIAN* 568

Functional Empty Capsid Precursors Produced by a Lambda Mutant Defective for Late λ DNA Replication. P. DAWSON, B. HOHN, T. HOHN, AND A. SKALKA* . 576

Early Gene Expression in Bacteriophage T7. I. In Vivo Synthesis, Inactivation, and Translational Utilization of Early mRNA's. KATHLEEN HERCULES, SUSAN JOVANOVICH, AND WALTER SAUERBIER* 642

Identification and Preliminary Characterization of a Mutant Defective in the Bac-

teriophage T4-Induced Unfolding of the *Escherichia coli* Nucleoid. D. PETER SNUSTAD,* MICHAEL A. TIGGES, KATHLEEN A. PARSON, CLAUDIA J. H. BURSCH, FRANCES M. CARON, JAMES F. KOERNER, AND DANIEL J. TUTAS 622

Sonic Fragility of the Head-Tail Bond of Bacteriophage P22. MARK RUDDEL AND VANCE ISRAEL* 675

Errata

Comparison of the Virion Proteins Specified by Herpes Simplex Virus Types 1 and 2. ENZO N. CASSAI, MARION SARMIENTO, AND PATRICIA G. SPEAR* 678

Polyacrylamide Gel Electrophoresis of Intact Bacteriophage T4D Particles. J. D. CHILDS* AND H. C. BIRNBOIM 678

Volume 17 Contents for March Number 3

Animal Viruses

Polyoma and Cell DNA Synthesis in Mouse L Cells Temperature Sensitive for the Replication of Cell DNA. ROSE SHEININ 692

Mason-Pfizer Virus RNA Genome: Relationship to the RNA of Morphologically Similar Isolates and Other Oncornaviruses. D. COLCHER, W. DROHAN, AND J. SCHLOM* 705

Purification and Serological Characterization of the Major Envelope Glycoprotein from AKR Murine Leukemia Virus and Its Reactivity with Autogenous Immune Sera from Mice. JAMES N. IHLE, TIMOTHY P. DENNY, AND DANI P. BOLOGNESI* 727

Synthesis of Complementary RNA Containing Polyadenylic Acid by Sendai Virions In Vitro. RICHARD J. COLONNO AND HENRY O. STONE* 737

Endogenous Oncornaviral DNA Sequences: Evidence for Two Classes of Viral DNA Sequences in Guinea Pig Cells. D. P. NAYAK* AND A. R. DAVIS 745

Comparison of the Serology, Transforming Ability, and Polypeptide Composition of Human Papovaviruses Isolated from Urine. PETER J. WRIGHT, GREGORY BERNHARDT, EUGENE O. MAJOR, AND GIAMPIERO DI MAYORCA* 762

Quantitation of the Viral DNA Present in Cells Transformed by UV-Irradiated Herpes Simplex Virus. DANIEL B. DAVIS AND DAVID T. KINGSBURY* 788

Factors Involved in the Generation and Replication of Rhabdovirus Defective T Particles. JOHN J. HOLLAND,* LUIS PEREZ VILLARREAL, AND MICHAEL BREINDL 805

Further Characterization of Intracytoplasmic A Particle-Associated DNA. DAVID G. LONGFELLOW* AND GILBERT H. SMITH 816

Quantitation of Bovine Papilloma Viral DNA in Viral-Induced Tumors. WAYNE D. LANCASTER,* CARL OLSON, AND WILLIAM MEINKE 824

Genome Localization of Simian Virus 40 RNA Species. GEORGE KHOURY,* BARRIE J. CARTER, FRANZ-JOSEF FERDINAND, PETER M. HOWLEY, MYLES BROWN, AND MALCOLM A. MARTIN 832

Multiplication of Parvovirus LuIII in a Synchronized Culture System. III. Replication of Viral DNA. GÜNTER SIEGL* AND MARKUS GAUTSCHI 841

Regulatory Mechanism of Simian Virus 40 Gene Expression in Permissive and in Nonpermissive Cells. ADOLF GRAESSMANN,* MONIKA GRAESSMANN, AND CHRISTIAN MUELLER 854

In Vivo and In Vitro Synthesis of Adenovirus Type 2 Early Proteins. JOSÉ L.

SABORIO AND BO ÖBERG* 865

Differences in RNA Patterns of Influenza A Viruses. P. PALESE* AND J. L. SCHULMAN 876

Demonstration of Subpopulations of Dane Particles. PAUL M. KAPLAN, EUGENIE C. FORD, ROBERT H. PURCELL, AND JOHN L. GERIN* 885

Analysis of Structural Proteins of Purified Murine Cytomegalovirus. K. S. KIM,* V. J. SAPIENZA, R. I. CARP, AND H. M. MOON 906

Analysis of Simian Virus 40 Wild-Type and Mutant Virions by Agarose Gel Electrophoresis. MARTIN ZWEIG,* STANLEY BARBAN, AND NORMAN P. SALZMAN 916

Isolation and Characterization of an Extremely Basic Protein from Adenovirus Type 5. KEIICHI HOSOKAWA* AND MICHAEL T. SUNG 924

Proteins of Epstein-Barr Virus. I. Analysis of the Polypeptides of Purified Enveloped Epstein-Barr Virus. MYRON DOLYNIUK, RANDALL PRITCHETT, AND ELLIOTT KIEFF* 935

Dissociation of $\alpha\beta$ DNA Polymerase of Avian Myeloblastosis Virus by Dimethyl Sulfoxide. DUANE P. GRANDGENETT 950

Group-Specific Antigen Shared by the Members of the Reticuloendotheliosis Virus Complex. REYNALDO L. MALDONADO AND H. R. BOSE, JR.* 983

Membrane Proteins Specified by Herpes Simplex Viruses. I. Identification of Four Glycoprotein Precursors and Their Products in Type 1-Infected Cells. PATRICIA G. SPEAR 991

Proposed Structure of Two Defective Viral DNA Oligomers Produced in 3T3 Cells Transformed by the ts-a Mutant of Polyoma Virus. MARGUERITE VOGT,* LEE T. BACHELER, AND LUBELLE BOICE 1009

Nuclear Membrane Changes in Herpes Simplex Virus-Infected BHK-21 Cells as Seen by Freeze-Fracture. HAROLD HAINES* AND ROY J. BAERWALD 1038

DNA-Negative Temperature-Sensitive Mutants of Herpes Simplex Virus Type 1: Patterns of Viral DNA Synthesis After Temperature Shift-Up. PRISCILLA A. SCHAFFER,* DONALD R. BONE, AND RICHARD J. COURTNEY 1043

Initiation of DNA Synthesis by the Avian Oncornavirus RNA-Directed DNA Polymerase: Tryptophan tRNA as the Major Species of Primer RNA. WILLIAM R. FOLK AND ANTHONY J. FARAS* 1049

Induction of Measles Virus Hemagglutinin in a Persistently Infected, Nonvirogenic Line of Cells (BGM/MV). THOMAS D. FLANAGAN* AND JAY H. MENNA 1052

Herpesvirus Proteins: Induction of Nucleoside Phosphotransferase Activity After Herpes Simplex Virus Infection. A. T. JAMIESON, J. HAY, AND J. H. SUBAK-SHARPE* 1056

Complementation Between BK Human Papovavirus and a Simian Virus 40 tsA Mutant. DAVID H. MASON, JR.,* AND K. TAKEMOTO 1060

Formation of an Infectious Virus-Antibody Complex with Rous Sarcoma Virus and Antibodies Directed Against the Major Virus Glycoprotein. MILTON J. SCHLESINGER 1063

Bacterial Viruses

Red System of Bacteriophage λ Complements the Growth of a Bacteriophage T1 Gene 4 Mutant. J. R. CHRISTENSEN 713

Recombinational-Type Transfer of Viral DNA During Bacteriophage 2C Replication in *Bacillus subtilis*. PHILIPPE HOET, GEORGES FRASELLE, AND CARLO COCITO* 718

Gene 32 Protein of Bacteriophage T4 Moderates the Activities of the T4 Gene 46/47-Controlled Nuclease and of the *Escherichia coli* RecBC Nuclease In Vivo. GISELA MOSIG* AND SUSAN BOCK 756

Process of Infection with Bacteriophage ϕX174. XXXVIII. Replication of ϕX174 Replicative Form In Vivo. AKIO FUKUDA AND ROBERT L. SINSHEIMER* 776

Late Events in T4 Bacteriophage Production. I. Late DNA Replication Is Primarily Exponential. LINDA D. KOSTURKO AND ANDRZEJ W. KOZINSKI* 794

Late Events in T4 Bacteriophage Production. II. Giant Bacteriophages Contain Concatemers Generated by Recombination. ANDRZEJ W. KOZINSKI* AND LINDA D. KOSTURKO 801

Escherichia coli Capsule Bacteriophages. VIII. Fragments of Bacteriophage 28-1. DIETLINDE RIEGER, ELISABETH FREUND-MÖLBERT, AND STEPHAN STIRM* 859

Head Morphologies in Bacteriophage T4 Head and Internal Protein Mutant Infections. L. W. BLACK* AND D. T. BROWN 894

Biochemistry of DNA-Defective Mutants of Bacteriophage T4. VI. Biological Functions of Gene 42. THOMAS W. NORTH, MARY E. STAFFORD, AND CHRISTOPHER K. MATHEWS* 973

Purification and Properties of Bacteriophage ϕX174 Gene D Product. MICHAEL B. FARBER 1027

Insect Viruses

Biochemical, Biophysical, and Biological Properties of Densonucleosis Virus. I. Structural Proteins. P. TIJSSEN, J. VAN DEN HURK, AND E. KURSTAK* 686

Comparison of Biophysical and Morphological Properties of Occluded and Extracellular Nonoccluded Baculovirus from In Vivo and In Vitro Host Systems. MAX D. SUMMERS* AND LOY E. VOLKMAN 962

Plant Viruses

In Vitro Replication of Cowpea Mosaic Virus RNA. II. Solubilization of Membrane-Bound Replicase and the Partial Purification of the Solubilized Enzyme. PIM ZABEL,* INE JONGEN-NEVEN, AND ALBERT VAN KAMMEN 679

Erratum

Homology Between Avian Oncornavirus RNAs and DNA from Several Avian Species. M. SHOYAB AND M. A. BALUDA* 1068

AUTHOR INDEX
VOLUME 17

Aaronson, Stuart A., 374
Acheson, Nicholas H., 20
Adler, J., 472
Agabian, Nina, 568
Alexander, Veronica, 513
Allen, Patton T., 446
Anderson, Garth R., 335
Arwert, Fré, 492

Bacheler, Lee T., 1009
Baerwald, Roy J., 1038
Ball, Frederick R., 60
Baltimore, David, 168
Baluda, M. A., 106
Banerjee, Amiya K., 33
Barban, Stanley, 916
Beard, Peter, 20
Beemon, Karen L., 525
Bernhardt, Gregory, 762
Berthelon, Marie-Claude, 672
Birkenmeier, Edward, 614
Bishop, D. H. L., 149
Bishop, J. Marshall, 446
Bjursell, Gunnar, 492
Black, L. W., 894
Blumberg, Daphne D., 94
Bock, Susan, 756
Boice, LuBelle, 1009
Bolognesi, Dani P., 132, 727
Bond, Vincent C., 183
Bone, Donald R., 1043
Bose, Henry R., Jr., 446, 983
Bozarth, R. F., 472
Breindl, Michael, 805
Brown, D. T., 894
Brown, G. E., 191
Brown, Myles, 832
Bursch, Claudia J. H., 622

Caron, Frances M., 622
Carp, R. I., 906
Carter, Barrie J., 832
Carter, William A., 439
Center, Melvin S., 127
Chanock, Robert M., 431
Charman, Howard P., 51
Cheevers, William P., 402, 415
Chen, Michael C. Y., 614
Christensen, J. R., 713
Cocito, Carlo, 718
Coffin, John M., 393
Colcher, D., 705
Collett, Marc S., 291
Colonno, Richard J., 737
Consigli, Richard A., 127
Cooper, Geoffrey M., 422
Courtney, Richard J., 1043
Crémisi, Chantal, 204
Croissant, Odile, 204

Davey, Mary W., 439
Davids, Linda J., 160
Davis, A. R., 745
Davis, Daniel B., 788
Dawson, P., 576
DeFilippes, Frank M., 227
Denny, Timothy P., 727
de-Thé, Guy, 672
Dickson, C., 275
di Mayorca, Giampiero, 762
Dolyniuk, Myron, 935
Donehower, L., 287
Dooley, Douglas C., 352
Drohan, W., 705
Dubin, D. T., 149
Duesberg, Peter H., 525

Ernberg, Jan, 307

Famulari, Nancy G., 597, 605
Faras, Anthony J., 291, 525, 1049
Farber, Michael B., 1027
Favre, Marie-Claude, 672
Feil, Paul, 239
Ferdinand, Franz-Josef, 832
Flanagan, Thomas D., 1052
Fleissner, Erwin, 597, 605
Folk, William R., 1049
Ford, Eugenie C., 885
Fraselle, Georges, 718
Freund-Mölbert, Elisabeth, 859
Fukuda, Akio, 776

Gallo, R. C., 287
Garry, Robert F., 446
Gautschi, Markus, 841
Gelb, Nancy, 239
Gerin, John L., 885
Ghosh, Hara P., 477
Gilden, Raymond V., 51
Gillespie, D. H., 287
Ginsberg, Harold S., 140
Goldberg, Robert J., 43
Gottlieb, Charlene, 239

Graessmann, Adolf, 854
Graessmann, Monika, 854
Grandgenett, Duane P., 950
Gupta, S. L., 191

Haase, Ashley T., 525
Hackett, Adeline J., 269
Haines, Harold, 1038
Hallum, J. V., 68
Hamilton, Daniel L., 550
Hardesty, Boyd A., 453
Harrap, K. A., 254
Hay, J., 1056
Hayward, G. S., 503
Hefti, Elisabeth, 149
Henckes, G., 316
Hercules, Kathleen, 642
Heyman, T., 316
Hoet, Philippe, 718
Hohn, B., 576
Hohn, T., 576
Holland, John J., 805
Hosokawa, Keiichi, 924
Howley, Peter M., 832
Humphries, Eric H., 393

Ihle, James N., 727
Ishizaki, Ryotaro, 132
Israel, Vance, 675

Jaehning, J. A., 114
Jamieson, A. T., 1056
Jensik, Stephen C., 363
Johgen-Neven, Ine, 679
Jovanovich, Susan, 642

Kaluza, G., 1
Kamen, Robert, 212
Kaplan, Paul M., 885
Karlström, Olle H., 326
Khoury, George, 832
Kieff, Elliott, 935
Kim, K. S., 906
Kingsbury, David T., 788
Kirsch, Wolff M., 668
Kirsten, Werner H., 219
Knowles, Robert W., 183
Knudson, D. L., 254
Koch, Gebhard, 283
Koczot, Frank, 385
Koerner, James F., 622
Kornfeld, Stuart, 239
Kosturko, Linda D., 794, 801
Kozinski, Andrzej W., 794, 801
Kraus, A. A., 1
Kurstak, E., 686

Lagenaur, Carl, 568
Lancaster, Wayne D., 824
Lang, Dimitrij, 296
Lebleu, B., 191
Lehman, John M., 668
Lengyel, P., 191
Lenoir, Gilbert, 672
Levin, Reuven, 43
Liebes, Leonard, 584
Longfellow, David G., 816
Luftig, Ronald B., 550, 584

Mabie, Cheryl T., 94
McCormick, J. Justin, 584
McCorquodale, D. James, 296
McMillen, Janis, 127
Maisel, Jan E., 525
Major, Eugene O., 762
Malamy, Michael H., 94
Maldonado, Reynaldo L., 446, 983
Maley, Frank, 538
Martin, Malcolm A., 247, 832
Mason, David H., Jr., 1060
Mathews, Christopher K., 973
Maxwell, Ian H., 20
Medzon, Edward L., 60
Meinke, William, 824
Menna, Jay H., 1052
Moon, H. M., 906
Mosig, Gisela, 756
Moss, Bernard, 385
Mueller, Christian, 854

Nandi, S., 275
Nayak, D. P., 745
Neiman, Paul E., 160
North, Thomas W., 973
Nuss, Donald L., 283

Öberg, Bo, 865
Okamoto, Koji, 299
Olson, Carl, 824
Ozer, Harvey L., 352

Palese, P., 876
Panayotakis, O., 316
Panem, Sandra, 219
Parks, Wade P., 43
Parson, Kathleen A., 622
Person, Stanley, 183
Pignatti, Pier Franco, 204
Pritchett, Randall, 935
Prochownik, Edward V., 219
Puma, J. P., 275
Purcell, Robert H., 885

Rahman, Rukhsana, 51
Ramirez-Mitchell, Ruben, 453
Raskas, H. J., 114

Read, G. Sullivan, 183
Rebello, M. A., 191
Retzel, Ernest, 584
Reynolds, Roberta K., 374
Rhode, Solon L., III, 659
Rhodes, Dennis P., 33
Rich, Marvin, 584
Richardson, Linda S., 431
Rieger, Dietlinde, 859
Riggs, John, 269
Rimai, Lajos, 584
Robbins, Keith C., 335
Roeder, R. G., 114
Roizman, B., 503
Rose, James A., 140
Rothenberg, Ellen, 168
Rott, R., 1
Ruddel, Mark, 672
Rutberg, Lars, 492
Ryzlak, Maria, T., 352

Saborio, José L., 865
Saijo, N., 299
Salmeen, Irving, 584
Salzman, Norman P., 614, 916
Sapienza, V. J., 906
Sauerbier, Walter, 642
Schaffer, Priscilla A., 1043
Schlesinger, Milton J., 1063
Schlesinger, Sondra, 239
Schlom, J., 705
Schnitzer, Thomas J., 431
Schulman, J. L., 876
Schonick, Edward M., 43
Sedat, John, 212
Sefton, Bartholomew M., 85
Sen, G. C., 191
Shah, D. B., 175
Shaw, Alan R., 296
Sheinin, Rose, 692
Shoyab, M., 106
Siegl, Günter, 841
Silver, Sandra, 363
Sinsheimer, Robert L., 776
Skalka, A., 576
Sköld, Ola, 307
Smith, Gilbert H., 816
Smith, Helene S., 269
Smith, R. Guy, 287
Smith, Ralph E., 160
Snustad, D. Peter, 622
Spear, Patricia G., 991
Springer, E. Louise, 269
Stafford, Mary E., 973
Stanwick, Trevor L., 68
Stephenson, John R., 374
Stirm, Stephan, 859
Stollar, V., 149
Stone, Henry O., 737
Straus, Stephen E., 140
Subak-Sharpe, J. H., 1056
Sulkiwski, Eugene, 439
Summers, Max D., 962
Sung, Michael T., 924
Svenson, Stefan B., 326
Swetly, Peter, 27

Taber, Robert, 513
Tabuchi, Kazuo, 668
Takemoto, Kenneth K., 247, 1060
Temin, Howard M., 74, 422
Tigges, Michael A., 622
Tijssen, P., 686
Toneguzzo, Frances, 477
Trimble, Robert B., 538
Tutas, Daniel J., 622

Ussery, Michael A., 453

van den Hurk, J., 686
Van Kammen, Albert, 679
Villarreal, Luis Perez, 805
Vogt, Marguerite, 1009
Volkman, Loy E., 962

Wadsworth, S., 503
Waite, Marilynn R. F., 446
Warner, Susan C., 183
Weber, Joseph, 462
Weinmann, R., 114
Wengler, Gerd, 10
Wengler, Gisela, 10
West, David, 568
White, Martin H., 51
Whitford, William, 513
Wood, H. A., 472
Wright, Peter J., 762

Yaniv, Moshe, 204
Yu, Kenneth, 402, 415

Zabel, Pim, 679
Zarling, David A., 74
Ziff, Edward, 212
Zweig, Martin, 916

SUBJECT INDEX

VOLUME 17

N-acetylglucosaminyltransferase activity
  Chinese hamster ovary cells, 239
  enveloped RNA viruses, 239
Actinomycin D
  protein synthesis, inhibition of, 1
Adenovirus-associated virus
  Ad5, 140
  replication, 140
Adenovirus-specific RNA
  methylated nucleotide sequence, 385
  5′-terminus, 385
Adenovirus type 2
  early protein synthesis, 865
  KB cells, 462
  temperature sensitivity, 462
  viral proteins, 462
Adenovirus type 2 replication
  DNA-dependent RNA polymerase, 114
  RNA synthesis, 114
Adenovirus type 5
  basic protein, 924
  DNA minus, 140
  temperature-sensitive mutants, 140
Affinity sorbents
  mouse interferon, 439
AKR murine leukemia virus
  autogenous immune sera, 727
  envelope glycoprotein, 727
Antibody fragments
  peroxidase-labeled, 668
  SV40, 668
  T antigen, 668
Avian leukosis virus
  CEF, 393
  virus-specific RNA synthesis, 393
Avian lymphomatosis virus
  avian osteopetrosis virus, 160
  RNA-DNA hybridization, 160
Avian myeloblastosis virus
  dimethyl sulfoxide, 950
  $\alpha\beta$ DNA polymerase, 950
Avian oncornavirus
  ribonucleotide sequence homology, 106
Avian oncornavirus RNA
  DNA polymerase, 1049
  DNA synthesis, 1049
  tryptophan tRNA, 1049
Avian osteopetrosis virus
  avian lymphomatosis virus, 160
  RNA-DNA hybridization, 160
Avian RNA tumor virus
  lectin, 132
Avian sarcoma virus
  mutation rate, 74

Bacillus subtilis
  covalently closed circular DNA, 492
  phage 2C, 718
  prophage SPO2, 492
  recombinational transfer, 718
Bacteriophage 28-1
  E. coli, 859
Bacteriophage 2C
  B. subtilis, 718
  recombinational transfer, 718
Bacteriophage λ
  phage T1 gene 4 mutant, 713
  Red system, 713
Bacteriophage ϕCd1
  C. crescentus, 568
Bacteriophage ϕX174
  gene D product, 1027
  replicative form, 776
Bacteriophage BF23 DNA, 296
Bacteriophage BF23*st*(4) DNA, 296
Bacteriophage P22
  head-tail bond, 675
  sonic fragility, 675
Bacteriophage R23 replication
  E. coli, 307
  RNA control locus, 307
Bacteriophage T1
  gene 4 mutant, 713
Bacteriophage T4
  concatemers, 801
  DNA-defective mutants, 973
  DNA replication, 794
  E. coli, 299
  E. coli B, 538
  E. coli nucleoid, 622
  E. coli RecBC nuclease, 756
  gene 32 protein, 756
  gene 42, 973
  gene 43$^-$, 538
  gene 46/47-controlled nuclease, 756
  gene *regA*$^-$43$^-$, 538
  giant phage, 801
  head morphogenesis, 550
  head morphology, 894
  host-specific translation shut-off, 326
  internal protein, 894
  phage λ Red system, 713
  production, 794, 801
  thiomethyl-β-galactoside, 299

Bacteriophage T4D
E. coli, B, 175
gene 59 mutant, 175
Bacteriophage T5st0
isoaccepting species, 316
serine tRNA, 316
Bacteriophage T5 DNA, 296
Bacteriophage T5*st*(0) DNA, 296
Bacteriophage T7
early mRNA, 642
gene expression, 642
Baculovirus
extracellular nonoccluded, 962
occluded, 962
BALB/3T3 cells
morphological transformation, 269
murine leukemia virus, 269
BGM/MV cells
measles virus hemagglutinin, 1052
BHK-21 cells
freeze-fracture, 1038
HSV-infected, 1038
nuclear membrane changes, 1038
protein synthesis, 10
Semliki forest virus, 10
BK human papovavirus
SV40 tsA mutant, 1060
BK papovavirus DNA
hamster kidney cells, 247
Bovine papilloma viral DNA
viral-induced tumors, 824

Capsid precursors
DNA replication, 576
lambda mutant, 576
Capsule bacteriophage
E. coli, 859
Caulobacter crescentus
phage ϕCd1, 568
CEF cells
protein synthesis, 446
REV, 446
Cell fusion kinetics
HSV type I, 183
Chicken embryo fibroblasts
ALV-infected, 393
virus-specific RNA synthesis, 393
Chinese hamster ovary cells
enveloped RNA viruses, 239
CHO cells
reovirus, 513
virus resistance, 513
Chromatin-like structure
polyoma virus, 204
SV40, 204
Complementary RNA
poly(A), 737
Sendai virions, 737
Complementary strands
polyoma virus, 212
Complement-fixing soluble antigen
EBV antigen, 672
Concatemers
giant phage, 801
phage T4, 801
Cowpea mosaic virus RNA
in vitro replication, 679
membrane-bound replicase, 679

Dane particles
subpopulations, 885
Densonucleosis virus
structural proteins, 686
2-Deoxy-D-glucose
normal rat kidney cells, 219
type C virions, 219
Dimethyl sulfoxide
AMV, 950
$\alpha\beta$ DNA polymerase, 950
DNA copies
murine RNA tumor virus genome, 168
DNA-defective mutant
gene 42, 973
phage T4, 973
DNA-dependent RNA polymerase
Ad2 replication, 114
DNA-negative mutants
HSV-1, 1043
DNA oligomers
polyoma virus ts-a mutant, 1009
3T3 cells, 1009
DNA polymerase
avian oncornavirus RNA-directed, 1049
DNA polymerase, $\alpha\beta$
AMV, 950
dimethyl sulfoxide dissociation, 950
DNA replication
capsid precursors, 576
HeLa cells, 841
lambda mutant, 576
parvovirus LuIII, 841
phage T4, 794
SV40, 614
termination region gaps, 614
DNA synthesis
mouse L cells, 692
parvovirus H-1, 659
polyoma virus, 402, 415, 692
protein synthesis, 415
superhelical turns, 402
temperature-sensitive mutants, 659

Early protein synthesis
Ad2, 865
Ehrlich ascites tumor cells
interferon treatment, 191

mRNA treatment, 191
tRNA inactivation, 191
Endonuclease
SV40 virion, 352
virion-associated, 352
Endonuclease activity
polyoma-virus associated, 127
Enveloped RNA virus
N-acetylglucsaminyltransferase activity, 239
Chinese hamster ovary cells, 239
Envelope glycoprotein
AKR MuLV, 727
Epstein-Barr virus
enveloped, 935
polypeptides, 935
proteins, 935
Epstein-Barr virus antigen
complement-fixing soluble antigen, 672
Erythropoietic differentiation
Friend virus, 27
Escherichia coli
capsule phage, 859
nucleoid unfolding, 622
phage 28-1, 859
phage R23 replication, 307
phage T4-infected, 299, 622
RNA control locus, 307
thiomethyl-β-galactoside, 299
Escherichia coli B
gene 59 mutant, 175
mRNA, 538
phage T4 43⁻, 538
phage T4D, 175
phage T4 *regA*⁻, 43⁻, 538
Escherichia coli RecBC nuclease
gene 32 protein, 756
phage T4, 756

Feline leukemia RNA tumor virus
hydrodynamic diameter, 584
F-factor-containing cells
T7 protein synthesis, 94
Fowl plague virus
protein synthesis, inhibition of, 1
Friend murine leukemia virus
low-ionic-strength medium, 453
Friend virus
erythropoietic differentiation, 27
interferon induction, 27

Gene 42
DNA-defective mutants, 973
phage T4, 973
Gene 46/47
phage T4, 756
Gene D
phage φX174, 1027
Gene expression
early mRNA, 642
phage T7, 642
Gene 4 mutant
phage T1, 713
Gene 59 mutant
E. coli B, 175
phage T4D, 175
Gene 32 protein
E. coli RecBC nuclease, 756
gene 46/47, 756
phage T4, 756
Genome
MLV, 525
MSV, 525
murine RNA tumor virus, 168
murine sarcoma virus, 335
REV, 525
SV40, 832
Visna virus, 525
Giant bacteriophages
concatemers, 801
Glycoprotein
mouse mammary tumor virus, 275
precursor protein, 275
RSV, 1063
Glycoprotein precursors
HSV-1, 991
Glycosylation
virus-dependent, 85
Group-specific antigen
REV, 983
Guinea pig cells
oncornaviral DNA sequence, 745

Hamster kidney cells
BK papovavirus DNA, 247
HSV, 1056
Harvey murine sarcoma virus genome
rat tumor RNA, 335
Head morphogenesis
phage T4, 550
Head morphology
phage T4, 894
Head-tail bond
phage P22, 675
sonic fragility, 675
HeLa cells
DNA synthesis, 841
parvovirus LuIII, 841
Hemagglutinin
BGM/MV cells, 1052
measles virus, 1052
Herpes simplex virus
BHK-21 cells, 1038
freeze fracture, 1038
hamster kidney cells, 1056
nucleoside phosphotransferase activity, 1056

UV-irradiated, 788
viral DNA, 788
Herpes simplex virus DNA
lambda endonuclease, 503
terminally repetitive sequences, 503
Herpes simplex virus type 1
cell fusion kinetics, 183
DNA-negative mutants, 1043
DNA synthesis, 1043
glycoprotein precursors, 991
membrane proteins, 991
syncytia-producing mutant, 183
temperature-sensitive mutants, 1043
High-titer replication
MDBK cells, 597
Sendai virus, 597
Host-specific translation
phage T4-induced, 326
shut-off, 326
Human papovavirus
polypeptide composition, 762
serology, 762
transforming ability, 762
Human tumor extracts
rat type C virus p30, 51
Hydrodynamic diameter
FeLV, 584
MuMTV, 584
RSV, 584
Hypertonic initiation block
polypeptide synthesis, 283
VSV, 283

Infectious virus-antibody complex
glycoprotein, 1063
RSV, 1063
Influenza A virus
RNA patterns, 876
Interferon induction
Friend virus, 27
Intracytoplasmic A particle
mouse mammary tumor virus, 816
Isoaccepting species
phage T5st0, 316
serine tRNA, 316

KB cells
Ad2, 462
temperature sensitivity, 462
Kirsten murine sarcoma virus genomes
rat tumor RNA, 335

Lambda mutant
capsid precursors, 576
DNA replication, 576
L cells
NDV, 68
VSV mRNA, 477
Lectin
avian RNA tumor virus, 132
L-M cells
density change, 60
vaccinia virus-infected, 60

Mammalian type C virus
RNA sequence rescue, 43
Mason-Pfizer virus
RNA genome, 705
MDBK cells
high-titer replication, 597
Sendai virus, 597
Measles virus
BGM/MV cells, 1052
hemagglutinin, 1052
Membrane proteins
HSV-1, 991
Monkey kidney cells
SV40, 832
Mouse embryo fibroblasts
murine cytomegalovirus, 906
Mouse interferon
affinity sorbents, 439
Mouse L cells
DNA synthesis, 692
polyoma virus, 692
temperature sensitivity, 692
Mouse mammary tumor virus
intracytoplasmic A particle, 816
precursor protein, 275
glycoproteins, 275
mRNA
early, 642
E. coli B, 538
gene expression, 642
L cells, 477
phage T4 43$^-$, 538
phage T4 *regA*$^-$,43$^-$, 538
phage T7, 642
ribonucleoprotein particles, 477
VSV, 477
mRNA synthesis
VSV, 33
mRNA translation
Ehrlich ascites tumor cells, 191
Mumps virus
polypeptides, 363
Murine cytomegalovirus
mouse embryo fibroblasts, 906
structural proteins, 906
Murine leukemia virus
AKR, 727
BALB/3T3 cells, 269
genomic complexity, 525
morphological transformation, 269
Murine mammary tumor virus
hydrodynamic diameter, 584

Murine RNA tumor virus
DNA copies, 168
genome, 168
Murine sarcoma virus
genomic complexity, 525
Mutation rate
avian sarcoma virus, 74

Newcastle disease virus
L cells, 68
RNA polymerase, 68
temperature-sensitive mutant, 68
Normal rat kidney cells
2-deoxy-D-glucose, 219
type C virions, 219
Nuclear polyhedrosis virus
replication, 254
S. frugiperda, 254
Nucleoid unfolding
E. coli, 622
phage T4, 622
Nucleoside phosphotransferase activity
HSV, 1056
Nucleotide sequence
Ad-specific RNA, 385
Sindbis viral RNA, 149
5′-terminus, 385

Old World monkeys
type C RNA virus, 374
Oncornavirus DNA sequences
guinea pig cells, 745

Parvovirus H-1 replication
DNA synthesis, 659
temperature-sensitive H-1 mutants, 659
Parvovirus LuIII
DNA replication, 841
Hela cells, 841
Polyadenylic acid
cRNA, 737
Sendai virions, 737
Polyoma virus
chromatin-like structures, 204
closed-circular viral DNA, 402
DNA synthesis, 402, 415, 692
endonuclease activity, 127
lytic cycle, 204
mouse L cells, 692
protein synthesis, 415
3T3 cells, 1009
ts-a mutant, 1009
viral DNA oligomers, 1009
Polyoma virus DNA
complementary strands, 212
strand-specific transcription, 20

Polypeptide
EBV, 935
mumps virus, 363
Polypeptide synthesis
hypertonic initiation block, 283
VSV, 283
Precursor protein
glycoproteins, 275
mouse mammary tumor virus, 275
Prophage SPO2
B. subtilis, 492
covalently closed circular DNA, 492
Protein synthesis
actinomycin D, 1
BHK-21 cells, 10
fowl plague virus, 1
REV-infected CEF cells, 446
RNA virus, 1
Semliki forest virus, 10

Radioimmunoassay
rat type C virus p30, 51
Rat tumor RNA
murine sarcoma virus genome, 335
Rat type C virus p30
human tumor extract, 51
radioimmunoassay, 51
Recombinational transfer
B. subtilis, 718
phage 2C, 718
Renaturing fragments
vaccinia virus DNA, 227
Reovirus
CHO cells, 513
virus resistance, 513
Respiratory syncytial virus
ts-1 mutant, 431
Restriction enzyme digests
vaccinia virus DNA, 227
Reticuloendotheliosis virus
CEF cells, 446
genomic complexity, 525
group-specific antigen, 983
polypeptides, 983
protein synthesis, 446
virus release, 446
Rhadovirus
defective T particles, 805
Ribonucleoprotein particles
VSV mRNA, 477
Ribonucleotide sequence homology
avian oncornaviruses, 106
70*S* RNA
purification, 287
RNA-directed DNA polymerase, 291
RNase H, 291
RNA tumor virus, 287
RSV, 291

RNA control locus
E. coli, 307
phage R23 replication, 307
RNA-directed DNA polymerase
RNase H, 291
RSV, 291
RNA-DNA hybridization
avian lymphomatosis virus, 160
avian osteopetrosis virus, 160
RNA genome
MPV, 705
oncornaviruses, 705
RNA patterns
influenza A virus, 876
RNA polymerase
DNA-dependent, 114
NDV, 68
RNA replication
Cowpea mosaic virus, 679
RNase H
RNA-directed DNA polymerase, 291
RSV, 291
RNA sequence rescue
mammalian type C virus, 43
RNA synthesis
Ad2 replication, 114
ALV-infected CEF, 393
virus-specific, 393
RNA tumor virus
70*S* RNA, 287
RNA virus
protein synthesis, 1
Rous sarcoma virus
glycoprotein, 1063
hydrodynamic diameter, 584
70*S* RNA, 291
RNA-directed DNA polymerase, 291
RNase H, 291

Saccharomyces cerevisiae
killer strains, 472
neutral strains, 472
sensitive strains, 472
virus-like particles, 472
Semliki forest virus
BHK-21 cells, 10
protein synthesis, 10
Sendai virus
cRNA, 737
high-titer replication, 597
MDBK cells, 597
poly(A), 737
Sendai virus RNA
virion assembly, 605
Serine tRNA
isoaccepting species, 316
phage T5st0, 316
Simian virus 40
BK human papovavirus, 1060
chromatin-like structure, 204
DNA replication, 614
gene expression, 854
genome localization, 832
lytic cycle, 204
monkey kidney cells, 832
mutant virion, 916
peroxidase-labeled antibody fragments, 668
RNA species, 832
T antigen, 668, 854
termination region gaps, 614
tsA mutant, 1060
V antigen, 854
virion-associated endonuclease, 352
wild-type virion, 916
Sindbis viral RNA
5′ nucleotide sequence, 149
Spodoptera frugiperda
nuclear polyhedrosis virus, 254
Strand-specific transcription
polyoma virus DNA, 20
Structural polypeptides
immunological properties, 374
type C RNA virus, 374
Structural proteins
murine cytomegalovirus, 906
Syncytia-producing mutants
HSV type I, 183

T antigen
immunocytochemical localization, 668
peroxidase-labeled antibody fragments, 668
SV40, 668
SV40 gene expression, 854
3T3 cells
polyoma virus ts-a mutant, 1009
Temperature-sensitive mutants
Ad5, 140
DNA-minus, 140
DNA synthesis, 659
HSV-1, 1043
NDV, 68
parvovirus H-1 replication, 659
5′-Terminal sequence
VSV mRNA, 33
Termination region
gaps, 614
SV40 DNA replication, 614
5′-Terminus
Ad-specific RNA, 385
methylated nucleotide sequence, 385
Thiomethyl-β-galactoside
accumulation ability, 299
phage T4-infected *E. coli*, 299

T particles
  replication, 805
  rhabdovirus, 805
T7 protein synthesis
  episomally induced impairment, 94
  F-factor-containing cells, 94
  membrane permeability, 94
tRNA inactivation
  Ehrlich ascites tumor cells, 191
Tryptophan tRNA
  avian oncornavirus RNA-directed DNA polymerase, 1049
  primer RNA, 1049
ts-1 mutant
  genetic stability, 431
  respiratory syncytial virus, 431
tsA mutant
  SV40, 1060
ts-a mutant
  polyoma virus, 1009
Type C RNA virus
  Old World monkeys, 374
  structural polypeptides, 374
Type C virions
  2-deoxy-D-glucose, 219
  normal rat kidney cells, 219

UV irradiation
  HSV, 788

Vaccinia virus
  "early early" protein, 60
  L-M cells, 60
Vaccinia virus DNA
  renaturing fragments, 227
  restriction enzyme digest 227
V antigen
  SV40 gene expression, 854
Vesicular stomatitis virus
  hypertonic initiation block, 283
  L cells, 477
  mRNA, 477
  mRNA synthesis, 33
  polypeptide synthesis, 283
  ribonucleoprotein particles, 477
  5′-terminal sequence, 33
Viral-induced tumors
  bovine papilloma viral DNA, 824
Virion assembly
  Sendai virus, 605
Virus-like particles
  S. cerevisiae, 472
Visna virus
  genomic complexity, 525

Wild-type virion
  SV40, 916

JOURNAL

OF

VIROLOGY

VOLUME 18

WASHINGTON, D.C. 20006
1976

JOURNAL OF VIROLOGY

VOLUME 18 1976

EDITORIAL BOARD

Robert R. Wagner, *Editor-in-Chief* (1977)
University of Virginia School of Medicine, Charlottesville

Dwight L. Anderson, *Editor* (1978)
School of Dentistry, University of Minnesota, Minneapolis

Lennart Philipson, *Editor* (1979)
Biomedical Center Uppsala, Sweden

Myron Levine, *Editor* (1976)
School of Medicine, University of Michigan, Ann Arbor

Aaron J. Shatkin, *Editor* (1977)
The Roche Institute of Molecular Biology, Nutley, N.J.

John P. Bader (1976)
David Baltimore (1978)
David H. L. Bishop (1976)
David Botstein (1976)
Michael A. Bratt (1977)
Dennis T. Brown (1978)
Purnell Choppin (1977)
Richard W. Compans (1976)
Nicholas R. Cozzarelli (1977)
Vittorio Defendi (1976)
David T. Denhardt (1977)
Walter Doerfler (1977)
Elvera Ehrenfeld (1977)
Suzanne U. Emerson (1977)
Raymond L. Erikson (1976)
Erwin J. Fleissner (1977)
Fred R. Frankel (1976)
Richard M. Franklin (1976)
Robert M. Friedman (1976)
Robert C. Gallo (1977)
Harold S. Ginsberg (1976)
Marc Girard (1977)
Angus Graham (1978)
D. MacDonald Green (1977)
Hidesaburo Hanafusa (1977)
John J. Holland (1978)
Calderon Howe (1976)
Alice S. Huang (1978)
Klaus Hummeler (1976)
Paul J. Kaesberg (1976)
George Khoury (1978)
Edwin D. Kilbourne (1976)
David W. Kingsbury (1976)
Lloyd M. Kozloff (1976)
Seymour Lederberg (1976)
Karl Lonberg-Holm (1978)
Ronald B. Luftig (1978)
Brian McAuslan (1976)
Malcolm A. Martin (1978)
Christopher K. Mathews (1976)
Gisela Mosig (1976)
Bernard Moss (1977)
Joseph S. Pagano (1976)
Wade P. Parks (1977)
Elmer R. Pfefferkorn (1976)
Peter G. W. Plagemann (1977)
Robert E. Pollack (1978)
Ludvik A. Prevec (1977)
Craig R. Pringle (1977)
Fred Rapp (1978)
Dan S. Ray (1977)
Bernard E. Reilly (1977)
Bernard Roizman (1976)
Roland R. Rueckert (1976)
Norman P. Salzman (1978)
Joseph Sambrook (1976)
Sondra Schlesinger (1977)
Edward M. Scolnick (1978)
Lee D. Simon (1978)
Kai Simons (1978)
Anna M. Skalka (1977)
Patricia G. Spear (1978)
Donald F. Summers (1976)
William C. Summers (1977)
Howard M. Temin (1976)
Robin Weiss (1976)
John S. Wiberg (1976)
Ernest Winocour (1976)
Julius Youngner (1976)

Robert A. Day, *Managing Editor*
Gisella Pollock, *Director of Editorial Services*
Stephen D. Shifflett, *Production Editor*
1913 I St., N.W., Washington, D.C. 20006

EX OFFICIO

Helen R. Whiteley, *President* (1975–1976)
J. Mehsen Joseph, *Secretary*

Harlyn O. Halvorson, *Vice-President* (1975–1976)
Brinton M. Miller, *Treasurer*

The *Journal of Virology*, a publication of the American Society for Microbiology, 1913 I St., N.W., Washington, D.C. 20006, is devoted to the dissemination of fundamental knowledge concerning viruses of bacteria, plants, and animals. Investigators are invited to submit reports of original research in all areas of basic virology, including biochemistry, biophysics, genetics, immunology, morphology, and physiology. The *Journal* is issued monthly, four volumes per year. The nonmember subscription price is $60 per year, single copies are $6.00. The member subscription price is $15 per year. Correspondence relating to subscriptions, reprints, defective copies, availability of back issues, lost or late proofs, disposition of submitted manuscripts, and general editorial matters should be directed to the ASM Publications Office, 1913 I St., N.W., Washington, D.C. 20006 (area 202 833-9680).

Second-class postage paid at Washington, D.C. 20006, and at additional mailing offices.
Made in the U.S.A.
Copyright © 1976, American Society for Microbiology.
All Rights Reserved.

Volume 18

Contents for April

Number 1

Animal Viruses

DNA Polymerase Activities Induced by Polyoma Virus Infection of 3T3 Mouse Fibroblasts. MONICA NÄRKHAMMAR* AND GÖRAN MAGNUSSON 1

Regulated Transcription of the Genomes of Defective Virions and Temperature-Sensitive Mutants of Reovirus. D. A. SPANDIDOS, G. KRYSTAL, AND A. F. GRAHAM* 7

Mechanism of Interaction of Avian Myeloblastosis Virus Reverse Transcriptase with Avian Myeloblastosis Virus RNA. IZUMI YAMAURA AND LIEBE F. CAVALIERI* 26

Proteins Solubilized from Frog Virus 3 Particles: Effect on Transcription. A. M. AUBERTIN,* C. TRAVO, AND A. KIRN 34

Reverse Transcriptase Activity per Virion for Avian Myeloblastosis Virus and Rauscher Murine Leukemia Virus. LEONARD F. LIEBES, MARVIN A. RICH, J. JUSTIN MCCORMICK,* IRVING SALMEEN, AND LAJOS RIMAI 42

Cell Killing by Simian Virus 40: Variation in the Pattern of Lysosomal Enzyme Release, Cellular Enzyme Release, and Cell Death During Productive Infection of Normal and Simian Virus 40-Transformed Simian Cell Lines. LEONARD C. NORKIN* AND JANICE OUELLETTE 51

Deoxyribonucleoside Triphosphate Pools in Synchronized Human Cells Infected with Herpes Simplex Virus Types 1 and 2. BARBRA ROLLER AND GARY H. COHEN* 58

Fate of Input Oncornavirion RNA—Biological Studies. M. M. SVEDA, B. N. FIELDS, AND R. SOEIRO* 85

Host Range Temperature-Sensitive Mutants of Herpes Simplex Virus Type 2. D. WESTMORELAND AND F. RAPP* 92

Newcastle Disease Virus-Specific RNA: Poly(A)-Containing and Poly(A)-Deficient Transcripts as Revealed by Chromatography on Poly(U)-Sepharose. NATALIA L. VARICH,* IGOR S. LUKASHEVICH, AND NICOLAI V. KAVERIN 111

Recombination Between Temperature-Sensitive and Deletion Mutants of Reovirus. D. A. SPANDIDOS AND A. F. GRAHAM* 117

Characterization of the Type and Group Specificities of the Immune Response in Mice to Murine Leukemia Viruses. J. N. IHLE,* J. J. DOMOTOR, JR., AND K. M. BENGALI 124

Isolation of the Dengue Virus Envelope Glycoprotein from Membranes of Infected Cells by Concanavalin A Affinity Chromatography. STEPHEN A. STOHLMAN, OLLIE R. EYLAR, AND CHARLES L. WISSEMAN, JR.* 132

Inhibition of Epstein-Barr Virus DNA Synthesis and Late Gene Expression by Phosphonoacetic Acid. WILLIAM C. SUMMERS* AND GEORGE KLEIN 151

Viral Transcription in KB Cells Infected by Temperature-Sensitive "Early" Mutants of Adenovirus Type 5. TIMOTHY H. CARTER* AND HAROLD S. GINSBERG 156

Oligosaccharide Moieties of the Glycoprotein of Vesicular Stomatitis Virus. S. A. MOYER, J. M. TSANG, P. H. ATKINSON,* AND D. F. SUMMERS 167

Autologous Immune Responses to the Major Oncornavirus Polypeptides in Unmanipulated AKR/J Mice. MICHAEL B. A. OLDSTONE,* BERT C. DEL VILLANO, AND FRANK J. DIXON 176

Cellular Protein Synthesis Shutoff by Mengovirus: Translation of Nonviral and Viral mRNA's in Extracts from Uninfected and Infected Ehrlich Ascites Tumor Cells. SERGIO L. ABREU AND JEAN LUCAS-LENARD* 182

* Asterisk refers to person to whom inquiries regarding the paper should be addressed.

Introduction of Interrupted Secondary Structure in Supercoiled DNA as a Function of Superhelix Density: Consideration of Hairpin Structures in Superhelical DNA. MARY WOODWORTH-GUTAI AND JACOB LEBOWITZ* 195

Chemical Modification of Simian Virus 40 DNA by Reaction with a Water-Soluble Carbodiimide. J. LEBOWITZ,* C. G. GARON, M. C. Y. CHEN, AND N. P. SALZMAN 205

Hin D Restriction Mapping of Unpaired Regions in Simian Virus 40 Superhelical DNA I: Considerations Regarding Structure-Function Relationships. M. CHEN, J. LEBOWITZ,* AND N. P. SALZMAN 211

Structural and Growth Characteristics of Infectious Bursal Disease Virus. H. NICK, D. CURSIEFEN, AND H. BECHT* 227

Proteins of Epstein-Barr Virus. II. Electrophoretic Analysis of the Polypeptides of the Nucleocapsid and the Glucosamine- and Polysaccharide-Containing Components of Enveloped Virus. MYRON DOLYNIUK, ELKE WOLFF, AND ELLIOTT KIEFF* 289

Inhibition by Zinc of Rhinovirus Protein Cleavage: Interaction of Zinc with Capsid Polypeptides. BRUCE D. KORANT* AND BYRON E. BUTTERWORTH 298

Bidirectional Replication of Adenovirus Type 2 DNA. MARSHALL S. HORWITZ .. 307

Comparative Electrophoresis of the 18-22*S* RNAs of Newcastle Disease Virus. SUSAN REICH WEISS AND MICHAEL A. BRATT* 316

N-Tropic Variants Obtained After Co-Infection with N- and B-Tropic Murine Leukemia Viruses. NANCY HOPKINS,* PAULA TRAKTMAN, AND KATHLEEN WHALEN 324

Cooperative Transformation Studies with Temperature-Sensitive Mutants of Rous Sarcoma Virus. PIERO C. BALDUZZI 332

Relationships Between Intracisternal Type A and Extracellular Oncornavirus-Like Particles Produced in Murine MOPC-460 Myeloma Cells. DONALD L. ROBERTSON, PETER YAU, DARRELL C. DOBBERTIN, T. KEVIN SWEENEY, SIGRID S. THACH, THERESE BRENDLER, AND ROBERT E. THACH* 344

Influenza Virus RNAs in the Cytoplasm of Chicken Embryo Cells Treated with 3-Deoxyadenosine. CARROLL L. PRIDGEN 356

Transcriptase Activity and Genome Composition of Defective Influenza Virus. WILLIAM J. BEAN, JR., AND ROBERT W. SIMPSON* 365

Host Restriction of Friend Leukemia Virus Coat Protein Synthesis. USHARANJAN RAY, RUY SOEIRO,* AND BERNARD N. FIELDS 370

Bacterial Viruses

Postinfection Control by Bacteriophage T4 of *Escherichia coli recBC* Nuclease Activity. MARGARET T. BEHME,* GAIL D. LILLEY, AND K. EBISUZAKI 20

UV Sensitivity of a Nonrepressor Regulatory Protein of Bacteriophage P22. SHIN-ICHI TOKUNO* AND MICHAEL GOUGH 65

Early Events After Infection of *Escherichia coli* by Bacteriophage T5. II. Control of the Bacteriophage-Induced 5′-Nucleotidase Activity. SUSAN M. BERGET, THOMAS J. MOZER, AND HUBER R. WARNER* 71

Functional Half-Lives of Bacteriophage M13 Gene 5 and Gene 8 Messages. LORRAINE LICA and DAN S. RAY* 80

Protein Synthesis in Bacteriophage Ghost-Infected Cells. KEIICHI TAKEISHI AND AKIRA KAJI* 103

Pleiotropic Effects of Mutants in Gene A of Bacteriophage ϕX174. FRED D. FUNK* AND DALE SNOVER 141

Process of Infection with Bacteriophage ϕX174. XL. Viral DNA Replication of ϕX174 Mutants Blocked in Progeny Single-Stranded DNA Synthesis. AKIO FUKUDA AND ROBERT L. SINSHEIMER* 218

Isolation and Partial Characterization of a Corynebacteriophage β, *tox* Operator Constitutive-Like Mutant Lysogen of *Corynebacterium diphtheriae*. J. R. MURPHY,* J. SKIVER, AND G. MCBRIDE 235

Multiple Origins and Circular Structures in Replicating T5 Bacteriophage DNA. GERARD J. BOURGUIGNON,* T. KEVIN SWEENEY, AND HAJO DELIUS 245

Mutants of Bacteriophage T4 Deficient in the Ability to Induce Nuclear Disruption: Shutoff of Host DNA and Protein Synthesis, Gene Dosage Experiments, Identification of a Restrictive Host, and Possible Biological Significance. D. PETER SNUSTAD,* CLAUDIA J. H. BURSCH, KATHLEEN A. PARSON, AND STEVEN H. HEFENEIDER 268

Role of the Bacteriophage P22 Tail in the Early Stages of Infection. VANCE Israel 361

Plant Viruses

Blocked 5′ Termini in Brome Mosaic Virus RNA. RANJIT DASGUPTA, FUMIO HARADA, AND PAUL KAESBERG* 260

Volume 18 Contents for May Number 2

Animal Viruses

Isolation and Properties of the Replicase of Encephalomyocarditis Virus. A. TRAUB,* B. DISKIN, H. ROSENBERG, AND E. KALMAR 375

Synthesis and Integration of Viral DNA in Chicken Cells at Different Times After Infection with Various Multiplicities of Avian Oncornavirus. ALLAN T. KHOURY* AND HIDESABURO HANAFUSA 383

RNA Metabolism of Murine Leukemia Virus. III. Identification and Quantitation of Endogenous Virus-Specific mRNA in the Uninfected BALB/c Cell Line JLS-V9. HUNG FAN AND NIKOLAUS MUELLER-LANTZSCH* 401

Endogenous Ecotropic Mouse Type C Viruses Deficient in Replication and Production of XC Plaques. ULF R. RAPP AND ROBERT C. NOWINSKI* 411

Further Characterization of the Friend Murine Leukemia Virus Reverse Transcriptase-RNase H Complex. KARIN MOELLING 418

State of the Viral DNA in Rat Cells Transformed by Polyoma Virus. I. Virus Rescue and the Presence of Nonintegrated Viral DNA Molecules. ISHWARI PRASAD, DIMITRIS ZOUZIAS, AND CLAUDIO BASILICO* 436

Inhibition of Infectious Rous Sarcoma Virus Production by a Rifamycin Derivative. CHARLES SZABO,* MINA J. BISSELL, AND MELVIN CALVIN 445

Synthesis of the Adenovirus-Coded DNA Binding Protein in Infected Cells. ZVEE GILEAD,* KINJI SUGUWARA, G. SHANMUGAM, AND MAURICE GREEN 454

Intracellular Distribution and Sedimentation Properties of Virus-Specific RNA in Two Clones of BHK Cells Transformed by Polyoma Virus. IAN H. MAXWELL 461

Inherited Resistance to N- and B-Tropic Murine Leukemia Viruses In Vitro: Titration Patterns in Strains SIM and SIM.R Congenic at the Fv-1 Locus. VERA SCHUH, MARTIN E. BLACKSTEIN, AND ARTHUR A. AXELRAD* 473

Fractionation of DNA Nucleotide Transcripts from Moloney Sarcoma Virus and Isolation of Sarcoma Virus-Specific Complementary DNA. ARTHUR E.

FRANKEL,* RICHARD L. NEUBAUER, AND PETER J. FISCHINGER 481

Deletion Mapping of Moloney Type C Virus: Polypeptide and Nucleic Acid Expression in Different Transforming Virus Isolates. WADE P. PARKS,* RICHARD S. HOWK, ANTHONY ANISOWICZ, AND EDWARD M. SCOLNICK 491

Viral Glycoprotein Synthesis Studied in an Established Line of Japanese Quail Embryo Cells Infected with the Bryan High-Titer Strain of Rous Sarcoma Virus. MICHAEL S. HALPERN,* DANI P. BOLOGNESI, AND ROBERT R. FRIIS 504

Epstein-Barr Virus-Specific RNA. I. Analysis of Viral RNA in Cellular Extracts and in the Polyribosomal Fraction of Permissive and Nonpermissive Lymphoblastoid Cell Lines. S. DIANE HAYWARD AND ELLIOTT D. KIEFF* 518

Inhibition of Pseudorabies Virus Replication by Vesicular Stomatitis Virus. I. Activity of Infectious and Inactivated B Particles. EDWARD J. DUBOVI AND JULIUS S. YOUNGNER* 526

Inhibition of Pseudorabies Virus Replication by Vesicular Stomatitis Virus. II. Activity of Defective Interfering Particles. EDWARD J. DUBOVI AND JULIUS S. YOUNGNER* 534

Differential Inhibition of Host Protein Synthesis in L Cells Infected with RNA$^-$ Temperature-Sensitive Mutants of Vesicular Stomatitis Virus. PHILIP E. MCALLISTER* AND ROBERT R. WAGNER 550

Characterization of Rat Genetic Sequences of Kirsten Sarcoma Virus: Distinct Class of Endogenous Rat Type C Viral Sequences. EDWARD M. SCOLNICK,* ROBERT J. GOLDBERG, AND DAVID WILLIAMS 559

Unintegrated Viral DNA Is Synthesized in the Cytoplasm of Avian Sarcoma Virus-Transformed Duck Cells by Viral DNA Polymerase. HAROLD E. VARMUS* AND PETER R. SHANK 567

Use of Alkaline Sucrose Gradients in a Zonal Rotor to Detect Integrated and Unintegrated Avian Sarcoma Virus-Specific DNA in Cells. HAROLD E. VARMUS,* SUZANNE HEASLEY, JAMES LINN, AND KENNETH WHEELER 574

Evidence for Methylation of B77 Avian Sarcoma Virus Genome RNA Subunits. C. MARTIN STOLTZFUS* AND KENNETH DIMOCK 586

RNA$^-$ Temperature-Sensitive Mutants of Vesicular Stomatitis Virus: L-Protein Thermosensitivity Accounts for Transcriptase Restriction of Group I Mutants. D. MARGARET HUNT, SUZANNE U. EMERSON,* AND ROBERT R. WAGNER 596

Cell-Free Translation of Influenza Virus mRNA. JEAN CONTENT 604

Translation of Murine Leukemia Virus RNA in Cell-Free Systems from Animal Cells. IAN M. KERR,* UDY OLSHEVSKY, HARVEY F. LODISH, AND DAVID BALTIMORE 627

High-Voltage Electron Microscope Study of the Release of Vaccinia Virus from Whole Cells. GERALD V. STOKES 636

Effects of 2-Deoxyglucose, Glucosamine, and Mannose on Cell Fusion and the Glycoproteins of Herpes Simplex Virus. ROBERT W. KNOWLES AND STANLEY PERSON* 644

Construction and Analysis of Viable Deletion Mutants of Simian Virus 40. THOMAS E. SHENK,* JOHN CARBON, AND PAUL BERG 664

Multiple Structures of Adeno-Associated Virus DNA: Analysis of Terminally Labeled Molecules with Endonuclease R·*Hae*III. DAVID T. DENHARDT,* SHLOMO EISENBERG, KATALINA BARTOK, AND BARRIE J. CARTER 672

Simian Virus 40-Specific Polypeptides in Ad2$^+$ND1- and Ad2$^+$ND4-Infected Cells. C. W. ANDERSON, J. B. LEWIS,* P. R. BAUM, AND R. F. GESTELAND 685

Properties of the Scrapie Agent-Endomembrane Complex from Hamster Brain.

J. S. SEMANCIK,* R. F. MARSH, J. L. M. C. GEELEN, AND R. P. HANSON ... 693

Low-Molecular-Weight Rauscher Leukemia Virus Protein with Preferential Binding for Single-Stranded RNA and DNA. JAMES DAVIS, MICHAEL SCHERER, WEN PO TSAI, AND CEDRIC LONG* 709

Structural Difference Between the 5′ Termini of Viral and Cellular mRNA in Poliovirus-Infected Cells: Possible Basis for the Inhibition of Host Protein Synthesis. RAFAEL FERNANDEZ-MUNOZ AND JAMES E. DARNELL* 719

Electron Microscope Studies of Temperature-Sensitive Mutants of Herpes Simplex Virus Type 2. GUY A. CABRAL* AND PRISCILLA A. SCHAFFER 727

RNAs of Influenza A, B, and C Viruses. M. B. RITCHEY, P. PALESE,* AND E. D. KILBOURNE 738

Intracisternal A Particles from FLOPC-1 BALB/c Myeloma: Presence of High-Molecular-Weight RNA and RNA-Dependent DNA Polymerase. R. G. KRUEGER 745

Proteins of Yaba Monkey Tumor Virus. I. Structural Proteins. T. FENGER AND H. ROUHANDEH* 757

Nucleic Acid Renaturation and Restriction Endonuclease Cleavage Analyses Show that the DNAs of a Transforming and a Nontransforming Strain of Epstein-Barr Virus Share Approximately 90% of Their Nucleotide Sequences. BILL SUGDEN,* WILLIAM C. SUMMERS, AND GEORGE KLEIN 765

Acceleration of Transformation of Rat Embryo Cells by Rat Type C Virus. SURAIYA RASHEED,* AARON E. FREEMAN, MURRAY B. GARDNER, AND ROBERT J. HUEBNER 776

Mechanism of Premature Polypeptide Termination in a Mouse Ascites Cell-Free System Programmed by Encephalomyocarditis Viral RNA. LAWRENCE A. HUNT 788

Restriction Endonuclease from *Haemophilus gallinarum* (*Hga*I) Cleaves Polyoma DNA at Four Locations. KAZUO SHISHIDO AND PAUL BERG* 793

Spontaneous Release of Endogenous Ecotropic Type C Virus from Rat Embryo Cultures. SURAIYA RASHEED,* JOAN BRUSZEWSKI, ROBERT W. RONGEY, PRADIP ROY-BURMAN, HOWARD P. CHARMAN, AND MURRAY B. GARDNER ... 799

Sialylation of Glycoproteins of Murine Mammary Tumor Virus, Murine Leukemia Virus, and Mason-Pfizer Monkey Virus. ROBERT H. SCHLOEMER,* JEFFREY SCHLOM, GERALD SCHOCHETMAN, PAUL KIMBALL, AND ROBERT R. WAGNER 804

Neurovirulence and Induction of Hydrocephalus with Parental, Mutant, and Revertant Strains of Measles Virus. ALAN M. BRESCHKIN, MARTIN V. HASPEL, AND FRED RAPP* 809

Message Activity of Influenza Viral RNA. PATRICIA A. TEKAMP AND EDWARD E. PENHOET* 812

Bacterial Viruses

Bacteriophage ϕX174 Single-Stranded Viral DNA Synthesis in Temperature-Sensitive *dnaB* and *dnaC* Mutants of *Escherichia coli*. LAWRENCE B. DUMAS* AND CHRISTINE A. MILLER 426

Lysogenization of *Escherichia coli* by Bacteriophage Lambda: Complementary Activity of the Host's DNA Polymerase I and Ligase and Bacteriophage Replication Proteins *O* and *P*. USHARANJAN RAY AND A. SKALKA* 511

Identification of the Gene Controlling the Synthesis of the Major Bacteriophage T5 Membrane Protein. DONNA H. DUCKWORTH,* GLENDA B. DUNN, AND D. J. MCCORQUODALE 542

Structural Aberrations in Group A *Staphylococcus* Bacteriophages. HANS-W. ACKERMANN,* LAURENT BERTHIAUME, SORIN SONEA, AND SHANTI S. KASATIYA 619

Comparative Properties of Bacteriophage $\phi 6$ and $\phi 6$ Nucleocapsid. JAMES VAN ETTEN,* LES LANE, CARLOS GONZALEZ, JAMES PARTRIDGE, AND ANNE VIDAVER 652

Location in Bacteriophage Lambda DNA of Cleavage Sites of the Site-Specific Endonuclease from *Bacillus amyloliquefaciens* H. DENNIS M. HAGGERTY AND ROBERT F. SCHLEIF* 659

Localization and Functional Role of the *Pseudomonas* Bacteriophage 2 Depolymerase. FRANCISCO J. CASTILLO AND PASQUALE F. BARTELL* 701

DNA-Protein Complex in Circular DNA from *Bacillus* Bacteriophage GA-1. ANNIKA C. ARNBERG AND FRÉ ARWERT 783

Method for the Isolation of Bacteriophage T4 Mutants That Produce Particles with Giant Capsids. JONE V. PAIETTA, TIMOTHY L. MCDONALD, AND A. H. DOERMANN* 785

Erratum

Sonic Fragility of the Head-Tail Bond of Bacteriophage P22. MARK RUDDEL AND VANCE ISRAEL* 817

Volume 18 Contents for June Number 3

Animal Viruses

Fluorosugars Inhibit Biological Properties of Different Enveloped Viruses. MICHAEL F. G. SCHMIDT,* RALPH T. SCHWARZ, AND HANNS LUDWIG 819

Construction of the Genetic Map of the Polyoma Genome. LOIS K. MILLER* AND MIKE FRIED 824

RNA Composition of Junin Virus. MARIA T.AÑÓN, OSCAR GRAU, ZULEMA MARTÍNEZ SEGOVIA,* AND MARÍA T. FRANZE-FERNÁNDEZ 833

Isolation and Preliminary Characterization of Temperature-Sensitive Mutants of Newcastle Disease Virus. JUDITH EBEL TSIPIS AND MICHAEL A. BRATT* ... 848

Intracellular Restriction on the Growth of Induced Subgroup E Avian Type C Viruses in Chicken Cells. HARRIET L. ROBINSON 856

Mutant of Herpes Simplex Virus Type 1 Conditionally Able to Transform Thymidine Kinaseless L Cells to a tk^+ Phenotype. R. G. HUGHES, JR.,* AND W. H. MUNYON 867

Herpes Simplex Virus DNA in Transformed Cells: Sequence Complexity in Five Hamster Cell Lines and One Derived Hamster Tumor. N. FRENKEL, H. LOCKER, B. COX, B. ROIZMAN,* AND F. RAPP 885

Mechanism of Release of Active α Subunit from Dimeric $\alpha\beta$ Avian Myeloblastosis Virus DNA Polymerase. T. S. PAPAS,* D. J. MARCIANI, K. SAMUEL, AND J. G. CHIRIKJIAN 904

Murine Mammary Tumor Virus: Characterization of Infection of Nonmurine Cells. AKHIL B. VAIDYA,* ETIENNE Y. LASFARGUES, GARY HEUBEL, JENNIE C. LASFARGUES, AND DAN H. MOORE 911

Processing of Mengovirus Precursor Polypeptides in the Presence of Zinc Ions and Sulfhydryl Compounds. KENJI NAKAI AND JEAN LUCAS-LENARD* 918

Rhinovirus Multistranded RNA: Dependence of the Replicative Form on the

Presence of Actinomycin D. MALCOLM R. MACNAUGHTON,* JONATHAN A. COOPER, AND NIGEL J. DIMMOCK 926

Radioimmunoassays for the 70,000-Molecular-Weight Glycoproteins of Endogenous Mouse Type C Viruses: Viral Antigen Expression in Normal Mouse Tissues and Sera. SHIGEO HINO, JOHN R. STEPHENSON, AND STUART A. AARONSON* 933

Subunit Structure of the Glycoprotein Complex of Avian Tumor Virus. ROBERT N. LEAMNSON AND MICHAEL S. HALPERN* 956

RNA Synthesis in Cells Infected with Herpes Simplex Virus. XII. Sequence Complexity and Properties of RNA Differing in Extent of Adenylation. SAUL SILVERSTEIN, ROBERT MILLETTE, PAOLA JONES, AND BERNARD ROIZMAN* 977

Strain Selection During Serial Passage of *Trichoplusia ni* Nuclear Polyhedrosis Virus. KATHLEEN N. POTTER, P. FAULKNER,* AND E. A. MACKINNON 1040

Replication of Human Cytomegalovirus DNA: Lack of Dependence on Cell DNA Synthesis. JEAN M. DEMARCHI AND ALBERT S. KAPLAN* 1063

Biological Properties and Viral Surface Antigens of Burkitt Lymphoma- and Mononucleosis-Derived Strains of Epstein-Barr Virus Released from Transformed Marmoset Cells. GEORGE MILLER,* DONALD COOPE, JAMES NIEDERMAN, AND JOSEPH PAGANO 1071

Preliminary Biochemical Characterization of the Factor(s) Responsible for Herpesvirus-Induced Exogenous Fusion. DEAN B. LEVITAN AND HERBERT A. BLOUGH* 1081

In Vitro Synthesis of A-Particle Structural Protein by Membrane-Bound Polyribosomes. KIRA K. LUEDERS 1088

Analysis of Cytomegalovirus Genomes with Restriction Endonucleases HinD III and EcoR-1. BILL A. KILPATRICK,* ENG-SHANG HUANG, AND JOSEPH S. PAGANO 1095

Characterization of Simian Cells Transformed by Temperature-Sensitive Mutants of Simian Virus 40. CHRISTINE A. NOONAN, JOAN S. BRUGGE, AND JANET S. BUTEL* 1106

Characterization of the Oncornavirus Particles in the Plasma of Guinea Pigs with L2C Leukemia. R. MICHALIDES, J. SCHLOM, J. PEARSON, K. PERK, AND J. DAHLBERG* 1120

Effect of 5-Bromodeoxyuridine on Vaccinia Virus-Induced Polypeptide Synthesis: Selective Inhibition of the Synthesis of Some Post-Replicative Polypeptides. T. H. PENNINGTON 1131

Leukemia Virus Infection of Mammalian Cells: Effect on Two "Transformation-Associated" Surface Properties. KENNETH D. NOONAN,* PETER J. WRIGHT, NOËL BOUCK, AND GIAMPIERO DI MAYORCA 1134

Collaborative Study of Temperature-Sensitive Mutants of Herpes Simplex Virus Type 2. MORAG C. TIMBURY,* MARY LEE HENDRICKS, AND PRISCILLA A. SCHAFFER 1139

Production of B-Tropic Murine Leukemia Virus by Somatic Cell Hybrids Between Mouse Peritoneal Macrophages and Simian Virus 40-Transformed Human Cells. K. HUEBNER AND C. M. CROCE* 1143

Trypsin Action on the Growth of Sendai Virus in Tissue Culture Cells. IV. Evidence for Activation of Sendai Virus by Cleavage of a Glycoprotein. MASANOBU OHUCHI AND MORIO HOMMA* 1147

Infectious Center Assay for Complementation and Recombination Between Mutants of Reovirus. D. A. SPANDIDOS AND A. F. GRAHAM* 1151

Enterovirus Type 70 Virion and Intracellular Proteins. J. J. ESPOSITO* AND J. F.

OBIJESKI 1160

Bacterial Viruses

Genetic and Physiological Studies of Abortive Infections of Hydroxymethyluracil-Containing Bacteriophages in Lysogens of Temperate *Bacillus subtilis* Bacteriophage SPO2. SUSAN O. FRIEDMAN AND H. ERNEST HEMPHILL* 839

Absence of Interparental Recombination in Multiplicity Reconstitution from Incomplete Bacteriophage T4 Genomes. A. W. KOZINSKI,* A. H. DOERMANN, AND PATTI B. KOZINSKI 873

Identification of Gene Products Required for In Vitro Formation of the Internal Peptides of Bacteriophage T4. JUDITH GOLDSTEIN GIRI, JOHN E. MCCULLOUGH, AND SEWELL P. CHAMPE* 894

Novel Replicative Properties of a Capsid Mutant of Bacteriophage ϕX174. CHRISTINE C. VITO* AND CLIFTON E. DOWELL 942

Prophage Induction and Inactivation by UV Light. B. J. BARNHART,* S. H. COX, AND J. H. JETT 950

Replication of Mycoplasmavirus MVL51. IV. Inhibition of Viral Synthesis by Rifampin. JYOTIRMOY DAS AND JACK MANILOFF* 969

Function of Gene 49 of Bacteriophage T4. I. Isolation and Biochemical Characterization of Very Fast-Sedimenting DNA. BÖRRIES KEMPER* AND ELISABETH JANZ 992

Function of Gene 49 of Bacteriophage T4. II. Analysis of Intracellular Development and the Structure of Very Fast-Sedimenting DNA. BÖRRIES KEMPER* AND DENNIS T. BROWN 1000

Excision and Duplication of su3$^+$-Transducing Fragments Carried by Bacteriophage ϕ80. I. Novel Structure of ϕ80*sus*2psu3$^+$ DNA Molecule. HIDEO YAMAGISHI,* HACHIRO INOKUCHI, AND HARUO OZEKI 1016

Cleavage Maps of the Filamentous Bacteriophages M13, fd, f1, and ZJ/2. CEES A. VAN DEN HONDEL AND JOHN G. G. SCHOENMAKERS* 1024

Bacteriophage and Bacteriophage-Like Structures Carried by *Bacillus medusa* and Their Effect on Sporulation. G. S. HENDRY, J. B. GILLESPIE, AND P. C. FITZ-JAMES* 1051

Translation of T7 RNA In Vitro Without Cleavage by RNase III. YOSHIHIKO YAMADA AND DAI NAKADA* 1155

Molecular Weight of Bacteriophage PBS2 DNA. GAIL D. LAUER* AND LYNN C. KLOTZ 1163

Erratum

Hydrodynamic Diameters of Murine Mammary, Rous Sarcoma, and Feline Leukemia RNA Tumor Viruses: Studies by Laser Beat Frequency Light-Scattering Spectroscopy and Electron Microscopy. IRVING SALMEEN,* LAJOS RIMAI, RONALD B. LUFTIG, LEONARD LIEBES, ERNEST RETZEL, MARVIN RICH, AND J. JUSTIN MCCORMICK 1165

AUTHOR INDEX

VOLUME 18

Aaronson, Stuart A., 933
Abreu, Sergio L., 182
Ackermann, Hans-W., 619
Anderson, C. W., 685
Anisowicz, Anthony, 491
Añón, María T., 833
Arnberg, Annika C., 783
Arwert, Fré, 783
Atkinson, P. H., 167
Aubertin, A. M., 34
Axelrad, Arthur A., 473

Balduzzi, Peiro C., 332
Baltimore, David, 627
Barnhart, B. J., 950
Bartell, Pasquale F., 701
Bartok, Katalina, 672
Basilico, Claudio, 436
Baum, P. R., 685
Bean, William J., Jr., 365
Becht, H., 227
Behme, Margaret T., 20
Bengali, K. M., 124
Berg, Paul, 664, 793
Berget, Susan M., 71
Berthiaume, Laurent, 619
Bissell, Mina J., 445
Blackstein, Martin E., 473
Blough, Herbert A., 1081
Bolognesi, Dani P., 504
Bouck, Noël, 1134
Bourguignon, Gerard J., 245
Bratt, Michael A., 316, 848
Brendler, Therese, 344
Breschkin, Alan M., 809
Brown, Dennis, T., 1000
Brugge, Joan S., 1106
Bruszewski, Joan, 799
Bursch, Claudia J. H., 268
Butel, Janet S., 1106
Butterworth, Byron E., 298

Cabral, Guy A., 727
Calvin, Melvin, 445
Carbon, John, 664
Carter, Barrie J., 672
Carter, Timothy H., 156
Castillo, Francisco J., 701
Cavalieri, Liebe F., 26
Champe, Sewell P., 894
Charman, Howard P., 799
Chen, M. C. Y., 205, 211
Chirikjian, J. G., 904
Cohen, Gary H., 58
Content, J., 604
Coope, Donald, 1071
Cooper, Jonathan A., 926
Cox, B., 885
Cox, S. H., 950
Croce, C. M., 1143
Cursiefen, D., 227

Dahlberg, J., 1120
Darnell, James E., 719
Das, Jyotirmoy, 969
Dasgupta, Ranjit, 260
Davis, James, 709
Delius, Hajo, 245
Del Villano, Bert C., 176
DeMarchi, Jean M., 1063
Denhardt, David T., 672
di Mayorca, Giampiero, 1134
Dimmock, Nigel J., 926
Dimock, Kenneth, 586
Diskin, B., 375
Dixon, Frank J., 176
Dobbertin, Darrell C., 344
Doermann, A. H., 785, 873
Dolyniuk, Myron, 289
Domotor, J. J., Jr., 124
Dowell, Clifton E., 942
Dubovi, Edward J., 526, 634
Duckworth, Donna H., 542
Dumas, Lawrence B., 426
Dunn, Glenda B., 542

Ebisuzaki, K., 20
Eisenberg, Shlomo, 672
Emerson, Suzanne U., 596
Esposito, J. J., 1160
Eylar, Ollie R., 132

Fan, Hung, 401
Faulkner, P., 1040
Fenger, T., 757
Fernandez-Munoz, Rafael, 719
Fields, Bernard N., 85, 370
Fischinger, Peter J., 481
Fitz-James, P. C., 1051
Frankel, Arthur E., 481
Franze-Fernández, María T., 833
Freeman, Aaron E., 776
Frenkel, N., 885
Fried, Mike, 824
Friedman, Susan O., 839
Friis, Robert R., 504

Fukuda, Akio, 218
Funk, Fred D., 141

Gardner, Murray B., 776, 799
Garon, C. G., 205
Geelen, J. L. M. C., 693
Gesteland, R. F., 685
Gilead, Zvee, 454
Gillespie, J. B., 1051
Ginsberg, Harold S., 156
Giri, Judith Goldstein, 894
Goldberg, Robert J., 559
Gonzalez, Carlos, 652
Gough, Michael, 65
Graham, A. F., 7, 117, 1151
Grau, Oscar, 833
Green, Maurice, 454

Haggerty, Dennis M., 659
Halpern, Michael S., 504, 956
Hanafusa, Hidesaburo, 383
Hanson, R. P., 693
Harada, Fumio, 260
Haspel, Martin V., 809
Hayward, S. Diane, 518
Heasley, Suzanne, 574
Hefeneider, Steven H., 268
Hemphill, H. Ernest, 839
Hendricks, Mary Lee, 1139
Hendry, G. S., 1051
Heubel, Gary, 911
Hino, Shigeo, 933
Homma, Morio, 1147
Hopkins, Nancy, 324
Horwitz, Marshall S., 307
Howk, Richard S., 491
Huang, Eng-Shang, 1095
Huebner, K., 1143
Huebner, Robert J., 776
Hughes, R. G., Jr., 867
Hunt, D. Margaret, 596
Hunt, Lawrence A., 788

Ihle, J. N., 124
Inokuchi, Hachiro, 1016
Israel, Vance, 361

Janz, Elisabeth, 992
Jett, J. H., 950
Jones, Paola, 977

Kaesberg, Paul, 260
Kaji, Akira, 103
Kalmar, E., 375
Kaplan, Albert S., 1063
Kasatiya, Shanti S., 619
Kaverin, Nicolai V., 111
Kemper, Börries, 992, 1000
Kerr, Ian M., 627
Khoury, Allan T., 383
Kieff, Elliot, 289, 518
Kilbourne, E. D., 738
Kilpatrick, Bill A., 1095
Kimball, Paul, 804
Kirn, A., 34
Klein, George, 151, 765
Klotz, Lynn C., 1163
Knowles, Robert W., 644
Korant, Bruce D., 298
Kozinski, A. W., 873
Kozinski, Patti B., 873
Krueger, R. G., 745
Krystal, G., 7

Lane, Les, 652
Lasfargues, Etienne Y., 911
Lasfargues, Jennie C., 911
Lauer, Gail D., 1163
Leamnson, Robert N., 956
Lebowitz, Jacob, 195, 205, 211
Levitan, Dean B., 1081
Lewis, J. B., 685
Lica, Lorraine, 80
Liebes, Leonard F., 42
Lilley, Gail D., 20
Linn, James, 574
Locker, H., 885
Lodish, Harvey F., 627
Long, Cedric, 709
Lucas-Lenard, Jean, 182, 918
Ludwig, Hanns, 819
Lueders, Kira K., 1088
Lukashevich, Igor S., 111

McAllister, Philip E., 550
McBride, G., 235
McCormick, J. Justin, 42
McCorquodale, D. J., 542
McCullough, John E., 894
McDonald, Timothy L., 785
MacKinnon, E. A., 1040
Macnaughton, Malcolm R., 926
Magnusson, Göran, 1
Maniloff, Jack, 969
Marciani, D. J., 904
Marsh, R. F., 693
Maxwell, Ian H., 461
Michalides, R., 1120
Miller, Christine A., 426
Miller, George, 1071
Miller, Lois K., 824
Millette, Robert, 000
Moelling, Karin, 418
Moore, Dan H., 911
Moyer, S. A., 167
Mozer, Thomas J., 71

Mueller-Lantzsch, Nikolaus, 401
Munyon, W. H., 867
Murphy, J. R., 235

Nakada, Dai, 1155
Nakai, Kenji, 918
Närkhammar, Monica, 1
Neubauer, Richard L., 481
Nick, H., 227
Niederman, James, 1071
Noonan, Christine A., 1106
Noonan, Kenneth D., 1134
Norkin, Leonard C., 48
Nowinski, Robert C., 411

Obijeski, J. F., 1160
Ohuchi, Masanobu, 1147
Oldstone, Michael B. A., 176
Olshevsky, Udy, 627
Ouellette, Janice, 48
Ozeki, Haruo, 1016

Pagano, Joseph S., 1071, 1095
Paietta, John V., 785
Palese, P., 738
Papas, T. S., 904
Parks, Wade P., 491
Parson, Kathleen A., 268
Partridge, James, 652
Pearson, J., 1120
Penhoet, Edward E., 812
Pennington, T. H., 1131
Perk, K., 1120
Person, Stanley, 644
Potter, Kathleen N., 1040
Prasad, Ishwari, 436
Pridgen, Carroll L., 356

Rapp, Fred, 92, 809, 885
Rapp, Ulf R., 411
Rasheed, Suraiya, 776, 799
Ray, Dan S., 80
Ray, Usharanjan, 370, 511
Rich, Marvin A., 42
Rimai, Lajos, 42
Ritchey, M. B., 738
Robertson, Donald L., 344
Robinson, Harriet L., 856
Roizmann, Bernard, 885, 977
Roller, Barbra, 58
Rongey, Robert W., 799
Rosenberg, H., 375
Rouhandeh, H., 757
Roy-Burman, Pradip, 799

Salmeen, Irving, 42
Salzman, N. P., 205, 211
Samuel, K., 904
Schaffer, Priscilla A., 727, 1142
Scherer, Michael, 709
Schleif, Robert F., 659
Schloemer, Robert H., 804
Schlom, Jeffrey, 804, 1120
Schmidt, Michael F. G., 819
Schochetman, Gerald, 804
Schoenmakers, John G. G., 1024
Schuh, Vera, 473
Schwarz, Ralph T., 819
Scolnick, Edward M., 491, 559
Segovia, Zulema Martínez, 833
Semancik, J. S., 693
Shank, Peter R., 567
Shanmugam, G., 454
Shenk, Thomas E., 664
Shishido, Kazuo, 793
Silverstein, Saul, 977
Simpson, Robert W., 365
Sinsheimer, Robert L., 218
Skalka, A., 511
Skiver, J., 235
Snover, Dale, 141
Snustad, D. Peter, 268
Soeiro, Ruy, 85, 370
Sonea, Sorin, 619
Spandidos, D. A., 7, 117, 1151
Stephenson, John R., 933
Stohlman, Stephen A., 132
Stokes, Gerald V., 636
Stoltzfus, C. Martin, 586
Sugawara, Kenji, 454
Sugden, Bill, 765
Summers, D. F., 167
Summers, William C., 151, 765
Sveda, M. M., 85
Sweeney, T. Kevin, 245, 344
Szabo, Charles, 445

Takeishi, Keiichi, 103
Tekamp, Patricia A., 812
Thach, Robert E., 344
Thach, Sigrid S., 344
Timbury, Morag C., 1139
Tokuno, Shin-Ichi, 65
Traktman, Paula, 324
Traub, A., 375
Travo, C., 34
Tsai, Wen Po, 709
Tsang, J. M., 167
Tsipis, Judith Ebel, 848

Vaidya, Akhil B., 911
van den Hondel, Cees A., 1024
Van Etten, James, 652
Varich, Natalia L., 111
Varmus, Harold E., 567, 574

Vidaver, Anne, 652
Vito, Christine C., 942

Wagner, Robert R., 550, 596, 804
Warner, Huber R., 71
Weiss, Susan Reich, 316
Westmoreland, D., 92
Whalen, Kathleen, 324
Wheeler, Kenneth, 574
Williams, David, 559
Wisseman, Charles L., Jr., 132
Wolff, Elke, 289
Woodworth-Gutai, Mary, 195
Wright, Peter J., 1134

Yamada, Yoshihiko, 1155
Yamagishi, Hideo, 1016
Yamaura, Izumi, 26
Yau, Peter, 344
Youngner, Julius S., 526, 534

Zouzias, Dimitris, 436

SUBJECT INDEX

VOLUME 18

Actinomycin D
  rhinovirus multistranded RNA, 926
Adeno-associated virus DNA
  endonuclease R·HaeIII, 672
  multiple structures, 672
Adenovirus
  DNA binding protein, coded by, 454
Adenovirus type 2 DNA
  bidirectional replication, 307
Adenovirus type 5
  KB cells, 156
  viral transcription, 156
Affinity chromatography
  concanavalin A, 132
  dengue virus envelope glycoprotein, 132
Antigen expression
  endogenous mouse type C virus, 933
Avian myeloblastosis virus
  α subunit, 904
  dimeric $\alpha\beta$, 904
  reverse transcriptase, 26, 42
Avian oncornavirus
  chicken cells, 383
  DNA integration, 383
  DNA synthesis, 383
Avian sarcoma virus
  DNA polymerase, 567
  duck cells, 567
  genome, 586
  methylation, 586
  RNA subunits, 586
Avian sarcoma virus-specific DNA, 574
Avian tumor virus
  glycoprotein complex, 956
Avian type C virus
  intracellular restriction, 856
  subgroup E, 856

Bacillus amyloliquefaciens H
  endonuclease, site-specific, 659
  phage lambda DNA, 659
Bacillus bacteriophage GA-1
  circular DNA, 783
  DNA protein complex, 783
Bacillus medusa
  phage-like structures, 1051
  sporulation, 1051
Bacillus subtilis
  lysogens, 839
  phage SPO2, 839

Bacteriophage λ
  DNA ploymerase I, 511
  E. coli, 511
  replication proteins *O* and *P*, 511
Bacteriophage λ DNA
  B. amyloliquefaciens H, 659
  endonuclease, site-specific, 659
Bacteriophage ϕ6
  ϕ6 nucleocapsid, 652
Bacteriophage ϕ80
  ϕ80*sus2psu*3$^+$ DNA, 1016
  su3$^+$-transducing fragment, 1016
Bacteriophage ϕX174
  capsid mutant, 942
  DNA replication, 218
  DNA synthesis, single-stranded, 218
  E. coli dnaB mutant, 426
  E. coli dnaC mutant, 426
  gene A, 141
  pleiotropic effects, 141
Bacteriophage f1
  cleavage map, 1024
Bacteriophage fd
  cleavage map, 1024
Bacteriophage ghost-infected cells
  protein synthesis, 103
Bacteriophage M13.
  cleavage map, 1024
  genes 5 and 8 messages, 80
  half-life, 80
Bacteriophage P22
  nonrepressore regulatory protein, 65
  UV sensitivity, 65
Bacteriophage P22 tail
  role in early stages of infection, 361
Bacteriophage PBS2 DNA, 1163
Bacteriophage SPO2
  B. subtilis, 839
  lysogens, 839
Bacteriophage T4
  E. coli, 20
  gene 49, 992, 1000
  gene products, 894
  giant capsids, 785
  host DNA synthesis, 268
  internal polypeptides, 894
  protein synthesis, 268
  recBC nuclease, 20
Bacteriophage T4 genomes
  interparental recombination, 873

multiplicity reconstitution, 873
Bacteriophage T5
E. coli, 71
membrane protein sytnehsis, 542
5-nucleotidase activity, 71
Bacteriophage T5 DNA
circular structures, 245
multiple origins, 245
Bacteriophage ZJ/2
cleavage map, 1024
BHK cells
polyoma virus, 461
virus-specific RNA, 461
Bidirectional replication
Ad2 DNA, 307
Brome mosaic virus RNA
5′-termini, blocked, 260
5-Bromodeoxyuridine
vaccinia-virus induced polypeptide synthesis, 1131
B-tropism
MLV, 473
Burkitt lymphoma
EBV, 1071
marmoset cells, 1071
Bursal disease virus, 227

Capsid mutant
phage ϕX174, 942
Carbodiimide
SV40, 205
water-soluble, 205
Cell fusion
HSV, 644
Chicken embryo cells
cytoplasm, 356
3′-deoxyadenosine, 356
influenza virus RNA, 356
Complementary DNA
MSV-specific, 487
nucleotide transcripts, 487
Concanavalin A
affinity chromatography, 132
Corynebacteriophage
β,tox operator, 235
C. diphtheriae, 235
constitutive-like mutant lysogen, 235
Corynebacterium diphtheriae
β,tox operator, 235
constitutive-like mutant lysogen, 235
Cytomegalovirus
genome, 1095
restriction endonuclease EcoR-1, 1095
restriction endonuclease HinD III, 1095

Deletion mutants
recombination, 117
reovirus, 117
SV40, 664
Dengue virus
concanavalin A affinity chromatography, 132
envelope glycoprotein, 132
3′-Deoxyadenosine
chicken embryo cells, 356
influenza virus RNA, 356
Deoxyribonucleoside triphosphate pools
HSV, 58
Depolymerase
Pseudomonas phage 2, 701
DNA binding protein
adenovirus coded, 454
DNA polymerase
AMV α subunit, 904
avian sarcoma virus, 567
E. coli, 511
FLOPC-1 BALB/c myeloma, 745
intracisternal A particles, 745
phage lambda, 511
polyoma virus, 1
RNA-dependent, 745
3T3 mouse fibroblasts, 1
DNA-protein complex
Bacillus phage GA-1, 783
DNA replication
phage ϕX174, 218
DNA synthesis
avian oncornavirus, 383
chicken cells, 383
EBV, 151
phage ϕX174, 218
phosphonoacetic acid inhibition, 151
single-stranded, 218

Ecotropic type C virus
endogenous, 799
rat embryo cultures, 799
Ehrich ascites tumor cells
mengovirus, 182
mRNA, 182
protein synthesis shutoff, 182
Encelphalomyocarditis virus
replicase, 375
Encephalomyocarditis virus RNA
mouse ascites cell-free system, 788
polypeptide termination, 788
Endogenous mouse type C virus
glycoprotein, 933
viral antigen expression, 933
Endonuclease R·HaeIII
adeno-associated virus DNA, 672
Enterovirus type 70, 1160
Enveloped virus
EBV, 289
fluorosugar inhibition, 819
glucosamine-containing, 289
polysaccharide containing, 289
Envelope glycoprotein
dengue virus, 132
Enzyme release
cellular, 48
lysosomal, 48

SV40, 48
Epstein-Barr virus
Burkitt lymphoma-derived, 1071
DNA synthesis, 151
late gene expression, 151
marmoset cells, 1071
mononucleosis-derived strain, 1071
nucleic acid renaturation, 765
nucleocapsid polypeptides, 289
restriction endonuclease cleavage, 765
Epstein-Barr virus-specific RNA
lymphoblastoid cell line, 518
polyribosomal fraction, 518
Escherichia coli
dnaB mutant, 426
dnaC mutant, 426
DNA polymerase, 511
5′-nucleotidase activity, 71
phage λ, 511
phage φX174, 426
phage T4, 20
phage T5, 71
recBC nuclease, 20
replication proteins *O* and *P*, 511
Extracellular oncornavirus-like particles
intracisternal type A particles, 344
murine MOPC-460 cells, 344

FLOPC-1 BALB/c myeloma
intracisternal A particles, 745
RNA-dependent DNA polymerase, 745
Fluorosugar
enveloped virus inhibition, 819
Friend leukemia virus
coat protein synthesis, 370
host restriction, 370
Friend murine leukemia virus
reverse transcriptase-RNase H complex, 418
Frog virus 3
transcription, 34
Fv-1 locus
B-tropic MLV, 473
N-tropic MLV, 473

Gene 49
phage T4, 992, 1000
Gene A
phage φX174, 141
Genes 5 and 8 messages
half-lives, 80
phage M13, 80
Genome
cytomegalovirus, 1095
phage T4, 873
polyoma virus, 819
Genome composition
defective influenza virus, 365
Genome transcription
reovirus temperature-sensitive mutants, 7
Glycoprotein
avian tumor virus, 956
endogenous mouse type C virus, 933
HSV, 644
oligosaccharide moieties, 167
radioimmunoassay, 933
subunit structure, 956
VSV, 167
Glycoprotein cleavage
Sendai virus, 1147
trypsin action, 1147
Glycoprotein sialylation
MLV, 804
MP-MV, 804
murine mammary tumor virus, 804
Glycoprotein synthesis
Japanese quail embryo cells, 504
RSV, 504

Haemophilus gallinarum
polyoma DNA, 793
restriction endonuclease *Hga*I, 793
Herpes simplex virus
adenylation, 977
cell fusion, 644
deoxyribonucleoside triphosphate pools, 58
glycoproteins, 644
RNA synthesis, 977
synchronized human cells, 58
Herpes simplex virus DNA, 885
Herpes simplex virus type 1
thymidine kinaseless L cells, 867
tk$^+$ phenotype, 867
Herpes simplex virus type 2
host range, 92
Hin D
restriction mapping, 211
SV40 superhelical DNA, 211
temperature-sensitive mutants, 92, 727, 1139
Host DNA synthesis
phage T4, 268
shutoff, 268
Host protein synthesis
differential inhibition, 550
L cells, 550
VSV RNA$^-$ temperature-sensitive mutants, 550
Host restriction
coat protein synthesis, 370
Friend leukemia virus, 370
Human cytomegalovirus DNA
replication, 1063
Hydrocephalus
measles virus, 809

Immune response
MLV, 124
Influenza virus
cell-free translation, 604

defective, 365
genome composition, 365
mRNA, 604
transcriptase activity, 365
types A, B, and C, 738
Influenza virus RNA
chicken embryo cell cytoplasm, 356
3′-deoxyadenosine, 356
message activity, 810
Intracisternal type A particles
extracellular oncornavirus-like particles, 344
FLOPC-1 BALB/c myeloma, 745
murine MOPC-460 myeloma cells, 344
RNA-dependent DNA polymerase, 745

Japanese quail embryo cells
glycoprotein synthesis, 504
RSV, 504
Junin virus
RNA composition, 833

KB cells
Ad5, 156
viral transcription, 156
Kirstein sarcoma virus
endogenous rat type C viral sequences, 559

L cells
host protein synthesis, 550
VSV RNA$^-$ temperature-sensitive mutants, 550
L2C leukemia
guinea pig plasma, 1120
oncornavirus particles, 1120
Leukemia virus
mammalian cells, 1134
transformation-associated surface properties, 1134
Lymphoblastoid cell line
EBV-specific RNA, 518
polyribosomal fraction, 518

Marmoset cells
EBV, 1071
Mason-Pfizer monkey virus
glycoprotein sialylation, 804
Measles virus
hydrocephalus induction, 809
mutant strain, 809
parental strain, 809
revertant strain, 809
Membrane protein synthesis
phage T5, 542
Mengovirus
Ehrlich ascites tumor cells, 182
mRNA, 182
precursor polypeptides, 918
protein synthesis shutoff, 182
Moloney sarcoma virus
cDNA, 487
nucleotide transcripts, 487
Moloney type C virus
deletion mapping, 491
nucleic acid expression, 491
polypeptide expression, 491
Mononucleosis
EBV, 1071
marmoset cells, 1071
Mouse ascites cell-free system
EMC virus RNA, 788
polypeptide termination, 788
Mouse peritoneal macrophages
B-tropic MLV, 1143
somatic cell hybrids, 1143
SV40-transformed human cells, 1143
Mouse type C virus
XC plaques, 411
mRNA
BALB/c cell line JLS-V9, 401
cell-free translation, 604
Ehrlich ascites tumor cells, 182
host protein synthesis, 719
influenza virus, 604
mengovirus, 182
MLV, 401
poliovirus, 719
protein synthesis shutoff, 182
RNA metabolism, 401
5′-termini, 719
Murine leukemia virus
B-tropic, 324, 473, 1143
BALB/c JLS-V9 cells line, 401
Fv-1 locus, 473
glycoprotein sialylation, 804
immune response, 124
mouse peritoneal macrophages, 1143
mRNA, 401
N-tropic, 324, 473
recombination, 324
RNA metabolism, 401
somatic cell hybrids, 1143
SV40-transformed human cells, 1143
Murine leukemia virus RNA
cell-free systems, 627
translation, 627
Murine mammory tumor virus
glycoprotein sialylation, 804
nonmurine cell infection, 911
Murine MOPC-460 myeloma cells
extracellular oncornavirus-like particles, 344
intracisternal type A particles, 344
Mycoplasma virus MVL51
replication, 969
rifampin inhibition, 969
synthesis, 969

Newcastle disease virus
18-22S RNA, 316
temperature-sensitive mutants, 848

Newcastle disease virus-specific RNA
poly(A)-containing transcripts, 111
poly(A)-deficient transcripts, 111
poly(U)-Sepharose chromatography, 111
N-tropism
MLV, 473
Nuclear polyhedrosis virus
T. ni, 1040
Nucleic acid expression
Moloney type C virus, 491
Nucleic acid renaturation
EBV, 765
ϕ6 Nucleocapsid
phage ϕ6, 652
Nucleocapsid polypeptides
EBV, 289
5′-Nucleotidase activity
phage T5-infected *E. coli*, 71
Nucleotide transcripts
MSV-specific cDNA, 487

Oligosaccharide moieties
glycoprotein, 167
VSV, 167
Oncornavirus
AKR/J mice, 176
polypeptides, 176
Oncornavirus particles
guinea pig plasma, 1120
L2C leukemia, 1120
Oncornavirus RNA, 85

Peptide
internal, 894
phage T4, 894
Phosphonoacetic acid
EBV DNA synthesis, inhibition of, 151
Poliovirus
host protein synthesis, 719
mRNA, 719
5′-termini, 719
Poly(A)-containing transcripts
NDV-specific RNA, 111
Poly(U)Sepharose chromatography, 111
Poly(A)-deficient transcripts
NDV-specific RNA, 111
poly(U)-Sepharose chromatography, 111
Polyoma DNA
H. gallinarum, 793
restriction endonuclease *Hga*I, 793
Polyoma genome
genetic map, 824
Polyoma virus
BHK cells, 461
DNA polymerase, 1
nonintegrated viral DNA molecules, 436
rat cells, 436
3T3 mouse fibroblasts, 1
virus-specific RNA, 461
Polypeptide
AKR/J mice, 176
mengovirus, 918
precursor, 918
oncornavirus, 176
SV40-specific, 685
Polypeptide expression
Moloney type C virus, 491
Polypeptide synthesis
5′-bromodeoxyuridine, 1131
vaccinia virus-induced, 1131
Polyribosomes
A-particle structural protein, 1088
in vitro synthesis, 1088
membrane-bound, 1088
Poly(U)-Sepharose chromatography
NDV-specific RNA, 111
poly(A)-containing transcripts, 111
poly(A)-deficient transcripts, 111
Prophage inactivation
UV light, 950
Prophage induction
UV light, 950
Protein cleavage
zinc inhibition, 298
Protein synthesis
Ehrlich ascites tumor cells, 182
mengovirus, 182
mRNA, 182
phage ghost-infected cells, 103
phage T4, 268
shutoff, 182, 268
Pseudomonas bacteriophage 2
depolymerase, 701
Pseudorabies virus replication
B particles, 526
interfering particles, 534
VSV, inhibition of, 526, 534

Rat embryo cells
rat type C virus, 776
Rat type C viral sequences
KiSV, 559
Rat type C virus
rat embryo cells, 776
Rauscher leukemia virus protein
single-stranded RNA and DNA, 709
recBC nuclease
E. coli, 20
phage T4, 20
Recombination
B-tropic MLV, 324
interparental, 873
N-tropic MLV, 324
phage T4 genomes, 873
Reovirus
deletion mutants, 117
genome transcription, 7
infectious center assay, 1151

recombination, 117, 1151
temperature-sensitive mutants, 7, 117
Replicase
EMC virus, 375
Replicative form
actinomycin D, 926
rhinovirus multistranded RNA, 926
Restriction endonuclease cleavage
EBV, 765
Restriction endonuclease EcoR-1
cytomegalovirus genome, 1095
Restriction endonuclease *Hga*I
H. gallinarum, 793
polyoma DNA, 793
Restriction endonuclease HinD III
cytomegalovirus genome, 1095
Reverse transcriptase
AMV, 26
Rauscher MLV, 42
Reverse transcriptase-RNase H complex
Friend MLV, 418
Rhinovirus
capsid polypeptides, 298
protein cleavage, 298
Rhinovirus multistranded RNA
actinomycin D, 926
replicative form, 926
Rifampin
mycoplasma virus replication, 969
Rifamycin
RSV inhibition, 445
18-22*S* RNA
comparative electrophoresis, 316
NDV, 316
RNA metabolism
BALB/c JLS-V9 cell line, 401
MLV, 401
mRNA, 401
RNase
Friend murine leukemia virus, 418
RNase III
T7 RNA translation, 1155
RNase H
reverse transcriptase, complex with, 418
RNA synthesis
adenylation, 977
HSV, 977
RNA$^-$ temperature-sensitive mutants
L-protein thermosensitivity, 596
VSV, 596
transcriptase restriction, 596
Rous sarcoma virus
Bryan high-titer strain, 504
glycoprotein synthesis, 504
Japanese quail embryo cells, 504
rifamycin inhibition of, 445
temperature-sensitive mutants, 332
transformation studies, 332

Scrapie-agent endomembrane complex, 693
Sendai virus
glycoprotein cleavage, 1147
trypsin, 1147
Simian cells
SV40 temperature-sensitive mutants, 1106
Simian virus 40
Ad2$^+$ND1-infected cells, 685
Ad2$^+$ND4-infected cells, 685
deletion mutants, 664
enzyme release, 48
polypeptides, 685
simian cells, 48, 1106
temperature-sensitive mutants, 1106
Simian virus 40 DNA
Hin D restriction mapping, 211
superhelical, 211
water-soluble carbodiimide, 205
Staphylococcus bacteriophages
group A, 619
structural aberrations, 619
Supercoiled DNA
hairpin structures, 195
superhelix density, 195
Superhelical DNA
hairpin structures, 195
Hin D, 211
SV40, 211
su3$^+$-Transducing fragment
phage ϕ80, 1016

Temperature-sensitive mutants
Ad5, 156
"early," 156
host range, 92
HSV2, 92, 727, 1139
NDV, 848
recombination, 117
reovirus, 7, 117
RNA$^-$, 550
RSV, 332
transformation studies, 332
SV40, 1106
VSV, 550
5′-Termini
blocked, 260
brome mosaic virus RNA, 260
Thymidine kinaseless L cells
HSV1, 867
tk$^+$ phenotype, 867
3T3 mouse fibroblasts
DNA polymerase, 1
polyoma virus, 1
Transcriptase activity
defective influenza virus, 365
Transcription
frog virus 3, 34
Trichoplusia ni
nuclear polyhedrosis virus, 1040

UV sensitivity
phage P22, 65

Vaccinia virus
5-bromodeoxyuridine, 1131
electron microscope study, 636
polypeptide synthesis, 1131
release from whole cells, 636
Vesicular stomatitis virus
B particles, 526
glycoprotein, 167
host protein synthesis, 550
interfering particles, 534
L cells, 550
L-protein thermosensitivity, 596
oligosaccharide moieties, 167
pseudorabies virus replication, inhibition of, 526, 534
RNA⁻ temperature-sensitive mutants, 550, 596
transcriptase inhibition, 596
Virus-specific RNA
intracellular distribution, 461
sedimentation properties, 461

XC plaques
mouse type C virus, 411

Yaba monkey tumor virus
structural proteins, 757

JOURNAL

OF

VIROLOGY

VOLUME 19

WASHINGTON, D.C. 20006
1976

JOURNAL OF VIROLOGY

VOLUME 19 · 1976

EDITORIAL BOARD

Robert R. Wagner, *Editor-in-Chief* (1977)
University of Virginia School of Medicine, Charlottesville

Dwight L. Anderson, *Editor* (1978)
School of Dentistry, University of Minnesota, Minneapolis

Lennart Philipson, *Editor* (1979)
Biomedical Center Uppsala, Sweden

Myron Levine, *Editor* (1977)
School of Medicine, University of Michigan, Ann Arbor

Aaron J. Shatkin, *Editor* (1977)
The Roche Institute of Molecular Biology, Nutley, N.J.

John P. Bader (1976)
David Baltimore (1978)
David H. L. Bishop (1976)
David Botstein (1976)
Michael A. Bratt (1977)
Dennis T. Brown (1978)
Purnell Choppin (1977)
Richard W. Compans (1976)
Nicholas R. Cozzarelli (1977)
Vittorio Defendi (1976)
David T. Denhardt (1977)
Walter Doerfler (1977)
Elvera Ehrenfeld (1977)
Suzanne U. Emerson (1977)
Raymond L. Erikson (1976)
Erwin J. Fleissner (1977)
Fred R. Frankel (1976)
Richard M. Franklin (1976)
Robert M. Friedman (1976)
Robert C. Gallo (1977)
Harold S. Ginsberg (1976)
Marc Girard (1977)
Angus Graham (1978)
D MacDonald Green (1977)
Hidesaburo Hanafusa (1977)
John J. Holland (1978)
Calderon Howe (1976)
Alice S. Huang (1978)
Klaus Hummeler (1976)
Paul J. Kaesberg (1976)
George Khoury (1978)
Edwin D. Kilbourne (1976)
David W. Kingsbury (1976)
Lloyd M. Kozloff (1976)
Seymour Lederberg (1976)
Karl Lonberg-Holm (1978)
Ronald B. Luftig (1978)
Brian McAuslan (1976)
Malcolm A. Martin (1978)
Christopher K. Mathews (1976)
Gisela Mosig (1976)
Bernard Moss (1977)
Joseph S. Pagano (1976)
Wade P. Parks (1977)
Elmer R. Pfefferkorn (1976)
Peter G. W. Plagemann (1977)
Robert E. Pollack (1978)
Ludvik A. Prevec (1977)
Craig R. Pringle (1977)
Fred Rapp (1978)
Dan S. Ray (1977)
Bernard E. Reilly (1977)
Bernard Roizman (1976)
Roland R. Rueckert (1976)
Norman P. Salzman (1978)
Joseph Sambrook (1976)
Sondra Schlesinger (1977)
Edward M. Scolnick (1978)
Lee D. Simon (1978)
Kai Simons (1978)
Anna M. Skalka (1977)
Patricia G. Spear (1978)
Donald F. Summers (1976)
William C. Summers (1977)
Howard M. Temin (1976)
Robin Weiss (1976)
John S. Wiberg (1976)
Ernest Winocour (1976)
Julius Youngner (1976)

Robert A. Day, *Managing Editor*
Gisella Pollock, *Director of Editorial Services*
Stephen D. Shifflett, *Production Editor*
1913 I St., N.W., Washington, D.C. 20006

EX OFFICIO

Harlyn O. Halvorson, *President* (1976–1977)
J. Mehsen Joseph, *Secretary*
A. Frederick Rasmussen, Jr., *Vice-President* (1976–1977)
Brinton M. Miller, *Treasurer*

The *Journal of Virology*, a publication of the American Society for Microbiology, 1913 I St., N.W., Washington, D.C. 20006, is devoted to the dissemination of fundamental knowledge concerning viruses of bacteria, plants, and animals. Investigators are invited to submit reports of original research in all areas of basic virology, including biochemistry, biophysics, genetics, immunology, morphology, and physiology. The *Journal* is issued monthly, four volumes per year. The nonmember subscription price is $60 per year, single copies are $6.00. The member subscription price is $15 per year. Correspondence relating to subscriptions, reprints, defective copies, availability of back issues, lost or late proofs, disposition of submitted manuscripts, and general editorial matters should be directed to the ASM Publications Office, 1913 I St., N.W., Washington, D.C. 20006 (area 202 833-9680).

Second-class postage paid at Washington, D.C. 20006, and at additional mailing offices.
Made in the U.S.A.
Copyright © 1976, American Society for Microbiology.
All Rights Reserved.

Volume 19

Contents for July

Number 1

Animal Viruses

Early Synthesis of Semliki Forest Virus-Specific Proteins in Infected Chicken Cells. G. KALUZA 1

Amphotropic Host Range of Naturally Occurring Wild Mouse Leukemia Viruses. SURAIYA RASHEED,* MURRAY B. GARDNER, AND ESTELLA CHAN 13

Naturally Occurring Murine Leukemia Viruses in Wild Mice: Characterization of a New "Amphotropic" Class. JANET W. HARTLEY* AND WALLACE P. ROWE 19

Adenovirus Type 12-Specific RNA Sequences During Productive Infection of KB Cells. JAMES R. SMILEY AND STANLEY MAK* 36

Isolation and Characterization of Temperature-Sensitive Mutants of Adenovirus Type 2. PETER KATHMANN, JOCHEN SCHICK, ERNST-L. WINNACKER, AND WALTER DOERFLER* 43

Attenuation of Pathogenicity of Fowl Plague Virus by Recombination with Other Influenza A Viruses Nonpathogenic for Fowl: Nonexclusive Dependence of Pathogenicity on Hemagglutinin and Neuraminidase of the Virus. RUDOLF ROTT,* MICHAELA ORLICH, AND CHRISTOPH SCHOLTISSEK 54

Characterization of Adenovirus Type 2 Transcriptional Complexes Isolated from Infected HeLa Cell Nuclei. J. WILHELM, O. BRISON, C. KEDINGER, AND P. CHAMBON* 61

Sequence Homology Between Moloney Murine Sarcoma Virus and Moloney Leukemia Virus RNA. MAURICE BONDURANT, C. MARTIN STOLTZFUS, AND WILLIAM M. MITCHELL* 82

Role of Temperature-Sensitive Mutants in Persistent Infections Initiated with Vesicular Stomatitis Virus. JULIUS S. YOUNGNER,* EDWARD J. DUBOVI, DIANE O. QUAGLIANA, MARION KELLY, AND OLIVIA T. PREBLE 90

Temperature-Sensitive Mutants of Vesicular Stomatitis Virus Are Conditionally Defective Particles That Interfere with and Are Rescued by Wild-Type Virus. JULIUS S. YOUNGNER* AND DIANE O. QUAGLIANA 102

Synthesis of Type C Virus Particles from Murine-Cultured Cells Induced by Iododeoxyuridine. V. Effect of Interferon and Its Interaction with Dexamethasone. A. M. WU, A. SCHULTZ, AND R. C. GALLO* 108

Relationship of Friend Murine Leukemia Virus Production to Growth and Hemoglobin Synthesis in Cultured Erythroleukemia Cells. CORINNE C. SHERTON, LEONARD H. EVANS, ETHEL POLONOFF, AND DAVID KABAT* 118

Microviscosity of Togavirus Membranes Studied by Fluorescence Depolarization: Influence of Envelope Proteins and the Host Cell. NORMAN F. MOORE,* YECHEZKEL BARENHOLZ, AND ROBERT R. WAGNER 126

Effect of Passage in Culture on a Clone of BALB/c 3T3 Cells Transformed by Simian Virus 40. HELENE S. SMITH,* SUSAN TURNER, JO-ANN LEONG, AND PETER W. J. RIGBY 146

Structure of *Herpesvirus saimiri* Genomes: Arrangement of Heavy and Light Sequences in the M Genome. GEORG W. BORNKAMM,* HAJO DELIUS, BERNHARD FLECKENSTEIN, FRED-JOCHEN WERNER, AND CAREL MULDER 154

Reovirus-Specific Polypeptides: Analysis Using Discontinuous Gel Electrophoresis. RISE K. CROSS AND BERNARD N. FIELDS* 162

Temperature-Sensitive Mutants of Reovirus Type 3: Evidence of Aberrant $\mu 1$ and $\mu 2$ Polypeptide Species. RISE K. CROSS AND BERNARD N. FIELDS* 174

Enzyme Activities Associated with an Invertebrate Iridovirus: Nucleotide Phos-

* Asterisk refers to the person to whom inquiries regarding the paper should be addressed.

phohydrolase Activity Associated with Iridescent Virus Type 6 (CIV). CHANTAL MONNIER AND GERARD DEVAUCHELLE* 180

Mechanisms of Infection with Epstein-Barr Virus. I. Viral DNA Replication and Formation of Noninfectious Virus Particles in Superinfected Raji Cells. YOSHIHIRO YAJIMA AND MEIHAN NONOYAMA* 187

Detection of Adenovirus Type 2-Induced Early Polypeptides Using Cycloheximide Pretreatment to Enhance Viral Protein Synthesis. MARIAN L. HARTER,* G. SHANMUGAM, WILLIAM S. M. WOLD, AND MAURICE GREEN 232

Cytomegalovirus Proteins. I. Polypeptides of Virions and Dense Bodies. M. FIALA,* R. W. HONESS, D. C. HEINER, J. W. HEINE, JR., J. MURNANE, R. WALLACE, AND L. B. GUZE 243

Effect of Trypsin on Mouse Mammary Tumor Virus. JOEL B. SHEFFIELD,* C. M. ZACHARCHUK, N. TARASCHI, AND T. M. DALY 255

Characteristics of the Genome of Human Infantile Enteritis Virus (Rotavirus). ROGER D. SCHNAGL* AND IAN H. HOLMES 267

Comparative Membrane Microviscosity of Fish and Mammalian Rhabdoviruses Studied by Fluorescence Depolarization. NORMAN F. MOORE,* YECHEZKEL BARENHOLZ, PHILIP E. MCALLISTER, AND ROBERT R. WAGNER 275

Excision of Viral DNA from Host Cell DNA After Induction of Simian Virus 40-Transformed Hamster Cells. TAMARA RAKUSANOVA, JOAN C. KAPLAN, WILLIAM P. SMALES, AND PAUL H. BLACK* 279

Hybridization of mRNA from Adenovirus-Transformed Cells to Segments of the Adenovirus Genome. STEVEN BACHENHEIMER AND JAMES E. DARNELL* ... 286

Bacterial Viruses

Behavior of a Temperate Bacteriophage in Differentiating Cells of *Bacillus subtilis*. MARCIA S. OSBURNE* AND ABRAHAM L. SONENSHEIN 26

SAMase Gene of Bacteriophage T3 Is Responsible for Overcoming Host Restriction. F. WILLIAM STUDIER* AND N. RAO MOVVA 136

Characterization and Genetic Mapping of Nontoxinogenic (*tox*) Mutants of Corynebacteriophage Beta. RANDALL K. HOLMES 195

Prophage Map of Converting Corynebacteriophage Beta. WALTER LAIRD AND NEAL GROMAN* 208

Isolation and Characterization of *tox* Mutants of Corynebacteriophage Beta. WALTER LAIRD AND NEAL GROMAN* 220

Orientation of the *tox* Gene in the Prophage of Corynebacteriophage Beta. WALTER LAIRD AND NEAL GROMAN* 228

Genetic Studies of Coliphage P1. II. Relatedness to P7. DONALD H. WALKER, JR.,* AND JEAN TWEEDY WALKER 271

Erratum

Intracellular Distribution and Sedimentation Properties of Virus-Specific RNA in Two Clones of BHK Cells Transformed by Polyoma Virus. IAN H. MAXWELL 290

Volume 19 Contents for August Number 2

Animal Viruses

Induction of DNA Polymerase in Polyoma Virus-Infected Mouse Cells Requires Transcription and Translation. ERHARD WINTERSBERGER* AND ULRIKE WINTERSBERGER 291

Avian Leukosis Viruses of Different Subgroups and Types Isolated After Passage of Rous Sarcoma Virus-Rous-Associated Virus-0 in Cells from Different Ring-Necked Pheasant Embryos. HOWARD M. TEMIN* AND VICTORIA K. KASSNER 302

Encephalomyocarditis Virus RNA: Variations in Polyadenylic Acid Content and Biological Activity. DENNIS E. HRUBY* AND WALDEN K. ROBERTS 325

Size of Murine RNA Tumor Virus-Specific Nuclear RNA Molecules. WILLIAM A. HASELTINE AND DAVID BALTIMORE* 331

Type C Viruses from Kirsten Sarcoma-Transformed Mink Cells Co-Cultivated with Primate Cells and Expressing p30 Antigens Related to Feline Leukemia Virus. CHARLES J. SHERR,* RAOUL E. BENVENISTE, MICHAEL M. LIEBER, AND GEORGE J. TODARO 346

Isolation and Characterization of a Heat-Inducible Simian Virus 40 Mutant. HENRY ROTHSCHILD* AND MICHAEL P. LOCKWOOD 374

Some Biological and Physical Properties of Molluscum Contagiosum Virus Propagated in Cell Culture. ROBERT D. FRANCIS* AND HENRY B. BRADFORD, JR. 382

Recombination Between a Temperature-Sensitive Mutant and a Deletion Mutant of Rous Sarcoma Virus. SADAAKI KAWAI AND HIDESABURO HANAFUSA* 389

Failure of Defective Interfering Particles of Sindbis Virus Produced in BHK or Chicken Cells to Affect Viral Replication in *Aedes albopictus* Cells. AKIRA IGARSHI AND VICTOR STOLLAR* 398

Nature of the Molecular Heterogeneity of Human Leukocyte Interferon. JOSEPH K. CHEN, WIESLAW J. JANKOWSKI, JUDITH A. O'MALLEY, EUGENE SULKOWSKI, AND WILLIAM A. CARTER* 425

Association of the Polioviral RNA Polymerase Complex with Phospholipid Membranes. BRYON E. BUTTERWORTH,* E. J. SHIMSHICK, AND FAY H. YIN 457

Analysis of In Vitro Transcription Products of Intracellular Vesicular Stomatitis Virus RNA Polymerase. HELENE GALET, DOUGLAS HALLETT, AND LUDVIK PREVEC* 467

Intermediates in Advenovirus Assembly. BERIT EDVARDSSON, EINAR EVERITT, HANS JÖRNVALL, LENNART PRAGE, AND LENNART PHILIPSON* 533

Nucleotide Sequence That Binds Primer for DNA Synthesis to the Avian Sarcoma Virus Genome. BARBARA CORDELL,* EDWARD STAVNEZER, ROLAND FRIEDRICH, J. MICHAEL BISHOP, AND HOWARD M. GOODMAN 548

Conditional Lethal Mutants of Adenovirus Type 2-Simian Virus 40 Hybrids. II. Ad2$^+$ND1 Host-Range Mutants That Synthesize Fragments of the Ad2$^+$ND1 30K Protein. TERRI GRODZICKER,* JAMES B. LEWIS, AND CARL W. ANDERSON 559

Translation of Individual Host mRNA's in MPC-11 Cells Is Differentially Suppressed After Infection by Vesicular Stomatitis Virus. D. L. NUSS* AND G. KOCH 572

Defective Bud Formation in Human Cells Chronically Infected with Subacute Sclerosing Panencephalitis Virus. M. DUBOIS-DALCQ,* T. S. REESE, M. MURPHY, AND D. FUCCILLO 579

Human Cytomegalovirus: Glycoproteins Associated with Virions and Dense Bodies. MARK F. STINSKI 594

RNA Polymerase Activity in Purified Virions of Avian Reticuloendotheliosis Viruses. SATOSHI MIZUTANI AND HOWARD M. TEMIN* 610

Early Events in Polyoma Virus Infection: Attachment, Penetration, and Nuclear Entry. ROBERT L. MACKAY AND RICHARD A. CONSIGLI* 620

Characterization of a Temperature-Sensitive, Hexon Transport Mutant of Type 5 Adenovirus. ROBERT S. KAUFFMAN* AND HAROLD S. GINSBERG 643

Comparison of JC and BK Human Papovaviruses with Simian Virus 40: DNA

Homology Studies. JUNE E. OSBORN,* SYLVIA M. ROBERTSON, BILLIE L. PADGETT, DUARD L. WALKER, AND BERNARD WEISBLUM 675

Genome Structure of Incomplete Particles of Adenovirus. ELLEN DANIELL 696

Differential Response of Type C and Intracisternal Type A Particle Markers in Cells Treated with Iododeoxyuridine and Dexamethasone. EDWARD L. KUFF,* KIRA K. LUEDERS, JAN M. ORENSTEIN, AND SAMUEL H. WILSON 709

DNA-Binding Proteins Induced by Herpes Simplex Virus Type 2 in HEp-2 Cells. DOROTHY J. M. PURIFOY* AND KENNETH L. POWELL 717

Polyadenylic Acid in the Genomic RNA of Mengovirus. MILTON V. MARSHALL AND RALPH B. ARLINGHAUS* 743

Interaction of Liposomes with Subviral Particles of Poliovirus Type 2 and Rhinovirus Type 2. K. LONBERG-HOLM, L. B. GOSSER, AND E. J. SHIMSHICK* 746

Radioisotopic Labeling of Human Papovavirus (BK) by Iodination and Reductive Alkylation. PETER J. WRIGHT* and GIAMPIERO DI MAYORCA 750

Lysine tRNA's Associated with Avian Myeloblastosis Virus 70S RNA. JOHN V. CARLSON, W. G. ROBEY, AND B. J. ORTWERTH* 760

Bacterial Viruses

Origin of the Phospholipids of a Lipid-Containing Virus That Replicates in *Escherichia coli*: Bacteriophage PR4. JEFFREY A. SANDS 296

Genetic Characterization of a ϕ80 Transducing Bacteriophage Carrying the Histidine Operon of *Salmonella typhimurium*. LESLIE S. ISAKI AND MARY J. VOLL* 313

Action of Ethyl and Methyl Methane Sulfonates on DNA Injection and Genetic Recombination in T7 Bacteriophage. BARBARA KARSKA-WYSOCKI, MARGARET D. MAMET-BRATLEY,* AND WALTER G. VERLY 318

Enzymatic Degradation of Uracil-Containing DNA. II. Evidence for *N*-Glycosidase and Nuclease Activities in Unfractionated Extracts of *Bacillus subtilis*. JAMES DUNCAN, LENORE HAMILTON, AND ERROL C. FRIEDBERG* 338

DNA Strand Specificity of Temporal RNA Classes Produced During Infection of *Bacillus subtilis* by SP82. JONATHON M. LAWRIE, GEORGE B. SPIEGELMAN, AND H. R. WHITELEY* 359

Viral DNA-Synthesizing Intermediate Complex Isolated During Assembly of Bacteriophage ΦX174. HISAO FUJISAWA AND MASKAI HAYASHI* 409

Gene A Product of ΦX174 Is Required for Site-Specific Endonucleolytic Cleavage During Single-Stranded DNA Synthesis In Vivo. HISAO FUJISAWA AND MASAKI HAYASHI* 416

Replication of Bacteriophage T4 DNA In Vitro. I. Basic Properties of the System. YASUO IMAE* AND REIJI OKAZAKI 435

Phospholipid Metabolism in *Pseudomonas* BAL-31 Infected with Lipid-Containing Bacteriophage PM2. D. L. DIEDRICH* AND E. H. COTA-ROBLES 446

Membrane Protein Biosynthesis in Bacteriophage BF23-Infected *Escherichia coli*. EDWIN W. BILLMIRE AND DONNA H. DUCKWORTH* 475

Mutator Mutations in Bacteriophage T4 Gene *32* (DNA Unwinding Protein). ROBERT E. KOCH, M. KAY MCGAW, AND JOHN W. DRAKE* 490

Genetic Analysis of Bacteriophage ϕ29 of *Bacillus subtilis*: Integration and Mapping of Reference Mutants of Two Collections. RAFAEL P. MELLADO, FELIPE MORENO, ELADIO VIÑUELA, MARGARITA SALAS, BERNARD E. REILLY,* AND DWIGHT L. ANDERSON 495

Analysis of Gene Function of Bacteriophage ϕ29 of *Bacillus subtilis*: Identification of Cistrons Essential for Viral Assembly. ELAINE W. HAGEN, BERNARD E.

REILLY, MARIO E. TOSI, AND DWIGHT L. ANDERSON* 501

Morphogenesis of Bacteriophage ϕ29 of *Bacillus subtilis*: Preliminary Isolation and Characterization of Intermediate Particles of the Assembly Pathway. RODGER A. NELSON, BERNARD E. REILLY, AND DWIGHT L. ANDERSON* 518

Characterization of Some Pneumococcal Bacteriophages. RONALD D. PORTER AND WALTER R. GUILD* 659

Utilization of Early Promotors in Mutant *far*P85 of Bacteriophage T4. WALTER SAUERBIER,* KATHLEEN HERCULES, AND DWIGHT H. HALL 668

Process of Infection with Bacteriophage ϕX174. XLI. Synthesis of Defective ϕX Particles at 15°C. ROMILIO T. ESPEJO AND ROBERT L. SINSHEIMER* 732

Genetic Analysis of Heterogeneous DNA Circles Formed After Prophage Mu Induction. V. PARKER AND A. I. BUKHARI* 756

Plant Viruses

7-Methyl-Guanosine and Efficiency of RNA Translation. DING S. SHIH,* RANJIT DASGUPTA, AND PAUL KAESBERG 637

Erratum

Hin D Restriction Mapping of Unpaired Regions in Simian Virus 40 Superhelical DNA I: Considerations Regarding Structure-Function Relationships. M. CHEN, J. LEBOWITZ,* AND N. P. SALZMAN 764

Volume 19 Contents for September Number 3

Animal Viruses

Characteristics of Sindbis Virus Temperature-Sensitive Mutants in Cultured BHK-21 and *Aedes albopictus* (Mosquito) Cells. DORIS RENZ AND DENNIS T. BROWN* 775

Suppression of Glycoprotein Formation of Semliki Forest, Influzena, and Avian Sarcoma Virus by Tunicamycin. RALPH T. SCHWARZ,* JEAN M. ROHR-SCHNEIDER, AND MICHAEL F. G. SCHMIDT 782

Thymidine Metabolism and DNA Synthesis in Newcastle Disease Virus-Infected Cells. ROGER HAND 801

Configurational Variants of Oncornavirus RNAs. JOHN P. BADER* AND DAVID A. RAY 810

Occluded and Nonoccluded Nuclear Polyhedrosis Virus Grown in *Trichoplusia ni*: Comparative Neutralization, Comparative Infectivity, and In Vitro Growth Studies. LOY E. VOLKMAN,* MAX D. SUMMERS, AND CHING-HSIU HSIEH ... 820

Interactions of Vesicular Stomatitis Virus with Murine Cell Surface Antigens. TOBY T. HECHT* AND DONALD F. SUMMERS 833

Physical and Metabolic Requirements for Early Interaction of Poliovirus and Human Rhinovirus with HeLa Cells. K. LONBERG-HOLM* AND N. M. WHITELEY 857

Glycosylation Sites of Vesicular Stomatitis Virus Glycoprotein. JAMES S. ROBERTSON,* JAMES R. ETCHISON, AND DONALD F. SUMMERS 871

Adenovirus Transcription. IV. Synthesis of Viral-Specific RNA in Human Cells Infected with Temperature-Sensitive Mutants of Adenovirus 5. S. M. BERGET,* S. J. FLINT, J. F. WILLIAMS, AND P. A. SHARP 879

Natural Immunity in Mice to Structural Polypeptides of Endogenous Type C RNA Viruses. JOHN R. STEPHENSON,* ROBERT L. PETERS, SHIGEO HINO, ROBERT

M. DONAHOE, LINDA K. LONG, STUART A. AARONSON, AND GARY J. KELLOFF 890

Evidence of Ambiguous Processing and Selective Degradation in the Noncapsid Proteins of Rhinovirus 1A. C. MCLEAN,* T. J. MATTHEWS, AND R. R. RUECKERT 903

Single Major Polypeptide of a Calicivirus: Characterization by Polyacrylamide Gel Electrophoresis and Stabilization of Virions by Cross-Linking with Dimethyl Suberimidate. F. L. SCHAFFER* AND M. E. SOERGEL 925

RNA-Dependent DNA Polymerase Activity of RNA Tumor Virus. VI. Processive Mode of Action of Avian Myeloblastosis Virus Polymerase. JONATHAN P. LEIS 932

Cell-Free Translation of Virion RNA from Nondefective and Transformation-Defective Rous Sarcoma Viruses. TONY PAWSON,* G. S. MARTIN, AND ALAN E. SMITH 950

Physical and Chemical Characterization of an Avian Reovirus. D. A. SPANDIDOS AND A. F. GRAHAM* 968

Nonpermissive Infection of L Cells by an Avian Reovirus: Restricted Transcription of the Viral Genome. D. A. SPANDIDOS AND A. F. GRAHAM* 977

Methylation Pattern of Genomic RNA from Moloney Murine Leukemia Virus. MAURICE BONDURANT,* SHU-ICHI HASHIMOTO, AND MAURICE GREEN 998

Induction of Murine p30 by Superinfecting Herpesviruses. CATHY L. REED AND FRED RAPP* 1028

Defective Interfering Passages of Sindbis Virus: Nature of the Defective Virion RNA. S. I. T. KENNEDY, CELIA J. BRUTON, BARBARA WEISS, AND SONDRA SCHLESINGER* 1034

Genome Localization of Adeno-Associated Virus RNA. BARRIE J. CARTER,* KENNETH H. FIFE, LUIS M. DE LA MAZA, AND KENNETH I. BERNS 1044

Selective Decrease in the Rate of Cleavage of an Intracellular Precursor to Rauscher Leukemia Virus p30 by Treatment of Infected Cells with Actinomycin D. G. A. JAMJOOM, R. B. NASO, AND R. B. ARLINGHAUS* 1054

Equine Infectious Anemia Virus: Evidence Favoring Classification as a Retravirus. HOWARD P. CHARMAN,* SHARON BLADEN, RAYMOND V. GILDEN, AND LEROY COGGINS 1073

Isolation of a Transcriptive Complex from Newcastle Disease Virions. RICHARD J. COLONNO AND HENRY O. STONE* 1080

Antigens and DNA of a Chimpanzee Agent Related to Epstein-Barr Virus. P. GERBER,* R. F. PRITCHETT, AND E. D. KIEFF 1090

Structure of a Defective Simian Virus 40 Genome Bearing an Operator from Bacteriophage Lambda. DANA DAVOLI,* ALEXANDER L. NUSSBAUM, AND GEORGE C. FAREED 1100

Assay for Type C Virus in Mouse Sera Based on Particulate Reverse Transcriptase Activity. P. ROY-BURMAN,* M. DOUGHERTY, B. K. PAL, H. P. CHARMAN, V. KLEMENT, AND M. B. GARDNER 1107

Bacterial Viruses

Replication of T4 DNA In Vitro. II. Assay System for and Some Properties of Gene Products Required for T4 DNA Replication. YASUO IMAE,* KAZUO SHINOZAKI, AND REIJI OKAZAKI 765

Characterization of an RNA-A Protein Complex Isolated from the RNA Bacteriophage M12. BARBARA LEIPOLD AND PETER H. HOFSCHNEIDER* 792

Control of Synthesis of mRNA's for T4 Bacteriophage-Specific Dihydrofolate Reductase and Deoxycytidylate Hydroxymethylase. HEMAN WITMER,* ANNA BAROS, DAVID ENDE, AND MICHAEL DOSMAR 846

Biochemical and Biophysical Properties of *Hyphomicrobium* Bacteriophage Hyφ30. RAYMOND L. KAPLAN, DAVID B. YELTON,* AND VINCENT F. GERENCSER 899

Bacteriophage G4 DNA Synthesis in Temperature-Sensitive *dna* Mutants of *Escherichia coli*. PAMELA L. DERSTINE, LAWRENCE B. DUMAS,* AND CHRISTINE A. MILLER 915

Enzymatic Action of Coliphage Ω8 and Its Possible Role in Infection. PETER PREHM AND KLAUS JANN* 940

Cleavage of λ DNA by a Site-Specific Endonuclease from *Serratia marcescens*. REGINALD H. MCPARLAND, LYLE R. BROWN, AND GEORGE D. PEARSON* 1006

Properties of Condensed Bacteriophage T4 DNA Isolated from *Escherichia coli* Infected with Bacteriophage T4. SUSAN HAMILTON AND DAVID E. PETTIJOHN* 1012

Insect Viruses

Structural Proteins of La Cross Virus. JOHN F. OBIJESKI,* DAVID H. L. BISHOP, FREDERICK A. MURPHY, AND ERSKINE L. PALMER 985

Errata

Quantitation of the Viral DNA Present in Cells Transformed by UV-Irradiated Herpes Simplex Virus. DANIEL B. DAVIS AND DAVID T. KINGSBURY* 1111

Newcastle Disease Virus-Specific RNA: Poly(A)-Containing and Poly(A)-Deficient Transcripts as Revealed by Chromatography on Poly(U)-Sepharose. NATALIA L. VARICH,* IGOR S. LUKASHEVICH, AND NICOLAI V. KAVERIN 1111

Reprint of a small classic - from ASM

Milestones in Microbiology

Translated and edited by **Thomas D. Brock**

ASM is pleased to be able to offer a reprint of this small classic, which first appeared in 1961, and subsequently went out of print. MILESTONES is a collection of historically significant papers in microbiology, and is intended both as a book of general interest to all microbiologists and as an enlightening, thought-provoking text for students. Many professionals will want to read this book for its value in firmly documenting the great work in microbiology accomplished during the past 400 years. The book should also prove useful in teaching microbiology to students at all levels of development.

Contents

Historical Introduction; Spontaneous Generation and Fermentation; The Germ Theory of Disease; Immunology; Virology; Chemotherapy; General Microbiology.

Authors

Antony van Leeuwenhoek; Turbevill Needham; Lazzaro Spallanzani; Theodore Schwann; Charles Cagniard-Latour; Justis Liebig; Louis Pasteur; Ferdinand Cohn; John Tyndall; Joseph Lister; Eduard Buchner; Girolamo Fracastoro; J. Henle; Ignaz Semmelweis; Robert Koch; Paul Ehrlich; Edward Jenner; Elias Metschnikoff; Emil von Behring; Shibasaburo Kitasato; Jules Bordet; Friedrich Loeffler; P. Frosch; M. W. Beijerinck; F. d'Herelle; Wendell M. Stanley; B. Kronig; Th. Paul; Alexander Fleming; Gerhard Domagk; Donald D. Woods; Christian Gram; R. J. Petri; Martinus W. Beijerinck; S. Winogradsky; E. Wildiers; Albert J. Kluyver.

Reprinted 1975, 273 pages, $6.00. (ASM members may purchase this book for $4.00. Please enclose payment with order.)

Send your order to:
AMERICAN SOCIETY FOR MICROBIOLOGY
1913 I Street, N.W. Washington, D.C. 20006

AUTHOR INDEX

VOLUME 19

Aaronson, Stuart A., 890
Anderson, Carl W., 559
Anderson, Dwight L., 495, 501, 518
Arlinghaus, Ralph B., 743, 1054

Bachenheimer, Steven, 286
Bader, John P., 810
Baltimore, David, 331
Barenholz, Yechezkel, 126, 275
Baros, Anna, 846
Benveniste, Raoul E., 346
Berget, S. M., 879
Berns, Kenneth I., 1044
Billmire, Edwin W., 475
Bishop, David H. L., 985
Bishop, J. Michael, 548
Black, Paul H., 279
Bladen, Sharon, 1073
Bondurant, Maurice, 82, 998
Bornkamm, Georg W., 154
Bradford, Henry B., Jr., 382
Brison, O., 136
Brown, Dennis T., 775
Brown, Lyle R., 1006
Bruton, Celia J., 1034
Bukhari, A. I., 756
Butterworth, Byron E., 457

Carlson, John V., 760
Carter, Barrie J., 1044
Carter, William A., 425
Chambon, P., 61
Chan, Estella, 13
Charman, Howard P., 1073, 1107
Chen, Joseph K., 425
Coggins, Leroy, 1073
Colonno, Richard J., 1080
Consigli, Richard A., 620
Cordell, Barbara, 548
Cota-Robles, E. H., 446
Cross, Rise K., 162, 174

Daly, T. M., 255
Daniell, Ellen, 685
Darnell, James E., 286
Dasgupta, Ranjit, 637
Davoli, Dana, 1100
de la Maza, Luis M., 1044
Delius, Hajo, 154
Derstine, Pamela L., 915
Devauchelle, Gerard, 180
Diedrich, D. L., 446
di Mayorca, Giampiero, 750
Doerfler, Walter, 43
Donahoe, Robert M., 890
Dosmar, Michael, 846
Dougherty, M., 1107
Drake, John W., 490
Dubois-Dalcq, M., 579
Dubovi, Edward J., 90
Duckworth, Donna H., 475
Dumas, Lawrence B., 915
Duncan, James, 338

Edvardsson, Berit, 533
Ende, David, 846
Espejo, Romilio T., 732
Etchison, James R., 871
Evans, Leonard H., 118
Everitt, Einar, 533

Fareed, George C., 1100
Fiala, M., 243
Fields, Bernard N., 162, 173
Fife, Kenneth H., 1044
Fleckenstein, Bernhard, 154
Flint, S. J., 879
Francis, Robert D., 382
Friedberg, Errol C., 338
Friedrich, Roland, 548
Fuccillo, D., 579
Fujisawa, Hisao, 409, 416

Galet, Helene, 467
Gallo, R. C., 108
Gardner, Murray B., 13, 1107
Gerencser, Vincent F., 899
Gilden, Raymond V., 1073
Ginsberg, Harold S., 643
Goodman, Howard M., 548
Gosser, L. B., 746
Graham, A. F., 968, 977
Green, Maurice, 232, 998
Grodzicker, Terri, 559
Groman, Neal, 208, 220, 228
Guild, Walter R., 659
Guze, L. B., 243

Hagen, Elaine W., 501
Hall, Dwight H., 668
Hallett, Douglas, 467
Hamilton, Lenore, 338
Hamilton, Susan, 1012
Hanafusa, Hidesaburo, 389

Hand, Roger, 801
Harter, Marian L., 232
Hartley, Janet W., 19
Haseltine, William A., 331
Hashimoto, Shu-ichi, 998
Hayashi, Maskai, 409, 416
Hecht, Toby T., 833
Heine, J. W., Jr., 243
Heiner, D. C., 243
Hercules, Kathleen, 668
Hino, Shigeo, 890
Hofschneider, Peter H., 792
Holmes, Ian H., 267
Holmes, Randall K., 195
Honess, R. W., 243
Hruby, Dennis E., 325
Hsieh, Ching-Hsiu, 820

Igarashi, Akira, 398
Imae, Yasuo, 435, 765
Isaki, Leslie S., 313

Jamjoom, G. A., 1054
Jankowski, Wieslaw J., 425
Jann, Klaus, 940
Jörnvall, Hans, 533

Kabat, David, 118
Kaesberg, Paul, 637
Kaluza, G., 1
Kaplan, Joan C., 279
Kaplan, Raymond L., 899
Karska-Wysocki, Barbara, 318
Kassner, Victoria K., 302
Kathmann, Peter, 43
Kauffman, Robert S., 643
Kawai, Sadaaki, 389
Kedinger, C., 61
Kelloff, Gary J., 890
Kelly, Marion, 90
Kennedy, S. I. T., 1034
Kieff, E. D., 1090
Klement, V., 1107
Koch, G., 572
Koch, Robert E., 490
Kuff, Edward L., 709

Laird, Walter, 208, 220, 228
Lawrie, Jonathon M., 359
Leipold, Barbara, 792
Leis, Jonathan P., 932
Leong, Jo-Ann, 146
Lewis, James B., 559
Lieber, Michael M., 559
Lockwood, Michael P., 374
Lonberg-Holm, K., 746, 857
Long, Linda K., 890
Lueders, Kira K., 709

McAllister, Philip E., 275
McGaw, M. Kay, 490
Mackay, Robert L., 620
McLean, C., 903
McParland, Reginald H., 1006
Mak, Stanley, 36
Mamet-Bratley, Margaret D., 318
Marshall, Milton V., 743
Martin, G. S., 950
Matthews, T. J., 903
Mellado, Rafael P., 495
Miller, Christine A., 915
Mitchell, William M., 82
Mizutani, Satoshi, 610
Monnier, Chantal, 180
Moore, Norman F., 126, 275
Moreno, Felipe, 495
Movva, N. Rao, 136
Mulder, Carel, 154
Murnane, J., 243
Murphy, Frederick A., 985
Murphy, M., 579

Naso, R. B., 1054
Nelson, Rodger A., 518
Nonoyama, Meihan, 187
Nuss, D. L., 572
Nussbaum, Alexander L., 1100

Obijeski, John F., 985
Okazaki, Reiji, 435, 765
O'Malley, Judith A., 425
Orenstein, Jan M., 709
Orlich, Michaela, 54
Ortwerth, B. J., 709
Osborn, June E., 675
Osburne, Marcia S., 26

Padgett, Billie L., 675
Pal, B. K., 1107
Palmer, Erskine L., 985
Parker, V., 756
Pawson, Tony, 950
Pearson, George D., 1006
Peters, Robert L., 890
Pettijohn, David E., 1012
Philipson, Lennart, 533
Polonoff, Ethel, 118
Porter, Ronald D., 659
Powell, Kenneth L., 717
Prage, Lennart, 533
Preble, Olivia T., 90
Prehm, Peter, 940
Prevec, Ludvik, 467
Pritchett, R. F., 1090
Purifoy, Dorothy J. M., 717

Quagliana, Diane O., 90, 102

Rakusanova, Tamara, 279
Rapp, Fred, 1028
Rasheed, Suraiya, 13
Ray, David A., 810
Reed, Cathy L., 1028
Reese, T. S., 579
Reilly, Bernard E., 495, 501, 518
Renz, Doris, 775
Rigby, Peter W. J., 146
Roberts, Walden K., 325
Robertson, James S., 871
Robertson, Sylvia M., 675
Robey, W. G., 760
Rohrschneider, Jean M., 782
Rothschild, Henry, 374
Rott, Rudolf, 54
Rowe, Wallace P., 19
Roy-Burman, P., 1107
Rueckert, R. R., 903

Salas, Margarita, 495
Sands, Jeffrey A., 296
Sauerbier, Walter, 668
Schaffer, F. L., 925
Schick, Jochen, 43
Schlesinger, Sondra, 1034
Schmidt, Michael F. G., 782
Schnagl, Roger D., 267
Scholtissek, Christoph, 54
Schultz, A., 108
Schwarz, Ralph T., 782
Shanmugan, G., 232
Sharp, P. A., 879
Sheffield, Joel B., 255
Sherr, Charles J., 346
Sherton, Corinne C., 118
Shih, Ding S., 637
Shimshick, E. J., 457, 746
Shinozaki, Kazuo, 765
Sinsheimer, Robert L., 732
Smales, William P., 279
Smiley, James R., 36
Smith, Alan E., 950
Smith, Helene S., 146
Soergel, M. E., 925
Sonenshein, Abraham L., 26
Spandidos, D. A., 968, 977
Spiegelman, George B., 359
Stavnezer, Edward, 548
Stephenson, John R., 890
Stinski, Mark F., 594
Stollar, Victor, 398
Stoltzfus, C. Martin, 82
Stone, Henry O., 1080
Studier, F. William, 136
Sulkowski, Eugene, 425
Summers, Donald F., 833, 871
Summers, Max D., 820

Taraschi, N., 255
Temin, Howard M., 302, 610
Todaro, George J., 346
Tosi, Mario E., 501
Turner, Susan, 146

Verly, Walter G., 318
Viñuela, Eladio, 495
Volkman, Loy E., 820
Voll, Mary J., 313

Wagner, Robert R., 126, 275
Walker, Donald H., Jr., 271
Walker, Duard L., 675
Walker, Jean Tweedy, 271
Wallace, R., 243
Weisblum, Bernard, 675
Weiss, Barbara, 1034
Werner, Fred-Jochen, 154
Whiteley, H. R., 359
Whiteley, N. M., 857
Wilhelm, J., 61
Williams, J. F., 879
Wilson, Samuel H., 709
Winnacker, Ernst-L., 43
Wintersberger, Erhard, 291
Wintersberger, Ulrike, 291
Witmer, Heman, 846
Wold, William S. M., 232
Wright, Peter J., 750
Wu, A. M., 108

Yajima, Yoshihiro, 187
Yelton, David B., 899
Yin, Fay H., 457
Youngner, Julius S., 90, 102

Zacharchuk, C. M., 255

SUBJECT INDEX

VOLUME 19

Actinomycin D
  intracellular precursor cleavage, 1054
  Rauscher leukemia virus p30, 1054
Adeno-associated virus RNA
  genome localization, 1044
Adenovirus assembly
  intermediates, 533
Adenovirus genome
  incomplete particles, 685
Adenovirus transcription
  Ad5 ts mutants, 879
  viral-specific RNA, 879
Adenovirus type 2
  cycloheximide pretreatment, 232
  early polypeptides, 232
  genome, 286
  HeLa cell nuclei, 61
  mRNA, 286
  protein synthesis, 232
  rat embryo cells, 286
  transcriptional complexes, 61
  ts mutants, 43
Adenovirus type 2-simian virus 40 Lybrids
  $Ad2^+ND1$ host range mutants, 559
  $Ad2^+ND1$ 30K protein, 599
  conditional lethal mutants, 599
Adenovirus type 5
  hexon transport mutant, 643
  transcription, 879
  ts mutant, 643
  viral-specific RNA, 879
Adenovirus type 12
  KB cells, 36
  RNA sequences, 36
Aedes albopictus
  BHK cells, 398
  Sindbis virus defective interfering particles, 398
  Sindbis virus ts mutants, 775
Avian leukosis virus
  ring-necked pheasant embryos, 302
  RSV-RAV-0, 302
Avian myeloblastosis virus
  70S RNA, 760
  RNA-dependent DNA polymerase, 932
  tRNA, 760
Avian reovirus
  characterization, 968
  genome transcript, 977
  L cells, 977
Avian reticuloendotheliosis virus
  RNA polymerase, 610
Avian sarcoma virus
  DNA synthesis, 548
  genome, 548
  glycoprotein formation, suppression of, 782
  nucleotide sequence, 548

Bacillus subtilis
  assembly, 501, 518
  cistron, 501
  DNA strand specificity, 359
  integration, 495
  morphogensis, 518
  N-glycosidase activity, 338
  nuclease activity, 338
  phage ϕ29, 495, 501, 518
  phage ϕ105, 26
  phage SP82, 359
  temporal RNA classes, 359
  uracil-containing DNA, 338
Bacteriophage λ operator
  SV40 genome, 1100
Bacteriophage ϕ29
  assembly, 501, 518
  B. subtilis, 495, 501, 518
  cistron, 501
  integration, 495
  morphogenesis, 518
Bacteriophage ϕ80, transducing
  histidine operon, 313
  S. typhimurium, 313
Bacteriophage ϕ105
  B. subtilis, 26
Bacteriophage ϕX174
  assembly, 409
  defective ϕX particles, 732
  DNA-synthesizing intermediate complex, 409
  endonucleolytic cleavage, 416
  gene A product, 416
Bacteriophage BF23
  E. coli, 475
  membrane protein biosynthesis, 475
Bacteriophage Hyϕ30
  Hyphomicrobium, 899
Bacteriophage M12
  RNA-A protein complex, 792
Bacteriophage PM2
  phospholipid metabolism, 446
  Pseudomonas BAL-31, 446
Bacteriophage PR4
  E. coli, 296
  phospholipids, 296

Bacteriophage SP82
B. subtilis, 359
DNA strand specificity, 359
temporal RNA classes, 359
Bacteriophage T3
host restriction, 136
SAMase gene, 136
Bacteriophage T4
deoxycytidylate hydroxymethylase, 846
dihydrofolate reductase, 846
DNA synthesis, 915
DNA unwinding protein, 490
early promotors, 668
E. coli ts *dna* mutants, 915
*far*P85 mutant, 668
gene *32*, 490
mRNA synthesis, 846
mutator mutations, 490
replication, 435
Bacteriophage T4 DNA
condensed, 1012
E. coli, 1012
gene products, 765
replication, 765
Bacteriophage T7
DNA injection, 318
genetic recombination, 318
methanesulforate, 318
BALB/c 3T3 cells
SV40, 146
BHK-21 cells
Sindbis virus ts mutants, 775
VSV, 102
Bud formation
subacute sclerosing panencephalitis virus, 579

Calicivirus
polypeptide, 925
virion stabilization, 925
Chicken embryo cells
protein synthesis, 1
SFV, 1
Chimpanzee agent
antigen, 1090
EBV, 1090
Cistron
B. subtilis, 501
phage ϕ29, 510
Coliphage Ω8
enzymatic action, 940
Coliphage P1
coliphage P7, 271
Coliphage P7
coliphage P1, 271
Conditional lethal mutants
Ad2$^+$ND1 host-range mutants, 559
Ad2-SV40 hybrids, 559
Corynebacteriophage beta
prophage map, 208, 228
tox mutants, 195, 220, 228
Corynebacterium diphtheriae
corynephage β, 195, 208, 220, 228
tox mutant, 195, 220, 228
Cycloheximide
Ad2, 232
early polypeptides, 232
protein synthesis, 232
Cytomegalovirus
dense bodies, 243
polypeptides, 243

Defective interfering particles
A. ulbopictus, 398
Sindbis virus, 398
Defective interfering passage
Sindbis virus, 1034
Deletion mutant
RSV, 389
Dense bodies
CMV, 243
human CMV, 594
glycoproteins, 594
polypeptides, 243
Deoxycytidylate hydroxymethylase
mRNA synthesis, 846
phage T4-specific, 846
Dexamethasone
intracisternal type A particles markers, 709
type C particle markers, 709
type C virus, 108
Dihydrofolate reductase
mRNA synthesis, 846
phage T4-specific, 846
Discontinuous gel electrophoresis
reovirus-specific polypeptides, 162
DNA-binding proteins
HEp-2 cells, 717
HSV type 2, 717
DNA circles
prophage mu, 756
DNA excision
host cell DNA, 279
SV40, 279
DNA homology studies
papovavirus, 675
SV40, 675
dna mutants
E. coli, 915
phage T4, 915
DNA polymerase
induction, 291
polyoma virus-infected mouse cells, 291
RNA-dependent, 932
RNA tumor virus, 932
DNA replication
EBV, 187

gene products, 765
phage T4, 765
superinfected Raji cells, 187
DNA strand specificity
B. subtilis, 359
phage SP82, 359
DNA synthesis
ASV genome, 548
NDV, 801
nucleotide sequence, 548
primes, 548
DNA-synthesizing intermediate complex
phage ϕX174 assembly, 409
DNA unwinding protein
gene *32*, 490
mutator mutations, 490
phage T4, 490

Early promotors
*far*P85 mutant, 668
phage T4, 668
Encephalomyocarditis virus RNA
poly(A) content, 325
Endogenous type C RNA virus
structural polypeptides, 890
Endonuclease
λ DNA cleavage, 1006
site-specific, 1006
S. marcescens, 1006
Endonucleolytic cleavage
gene A product, 416
phage ϕX174, 416
site-specific, 416
Envelope proteins
togavirus membrane, 126
Epstein-Barr virus
antigen, 1090
chimpanzee agent, 1090
DNA replication, 187
Raji cells, 187
Equine infectious anemia virus
retravirus, 1073
Erythroleukemia cells
Friend MuLV, 118
hemoglobulin synthesis, 118
Escherichia coli
DNA synthesis, 915
membrane protein biosynthesis, 475
phage BF23, 475
phage PR4, 296
phage T4, 915
phage T4 DNA, 1012
phospholipids, 296
ts *dna* mutants, 915

*far*P85 mutant
early promotors, 668
phage T4, 668

Feline leukemia virus
p30 antigen, 346
type C virus, 346
Fowl plague virus
hemagglutinin, 54
influenza virus recombinants, 54
recombination, 54
Friend murine leukemia virus
erythroleukemia cells, 118
hemoglobin synthesis, 118

Gene *32*
DNA unwinding protein, 490
mutator mutations, 490
phage T4, 490
Gene A product
endonucleolytic cleavage, 416
phage ϕX174, 416
Genome
Ad2, 286
adeno-associated virus RNA, 1044
ASV, 548
heavy and light sequences, 154
H. saimiri, 154
human infontile enteritis virus, 267
localization, 1044
rotavirus, 267
SV40, 1100
Genome RNA
mengovirus, 743
methylation pattern, 998
M-MuLV, 998
poly(A), 743
Genome transcription
avian reovirus, 977
L cells, 977
Glycoprotein
dense bodies, 594
glycosylation site, 871
human CMV, 594
VSV, 871
Glycoprotein formation
avian sarcoma virus, 782
influenza virus, 782
SFV, 782

Heat-inducible mutant
SV40, 374
HeLa cells
Ad2 transcriptional complexes, 61
poliovirus, 857
rhinovirus, human, 857
Hemagglutinin
fowl plague virus, 54
Hemoglobin synthesis
MuLV, 118
HEp-2 cells
DNA-binding proteins, 717

HSV type 2, 717
Herpes simplex virus type 2
DNA-binding proteins, 717
HEp-2 cells, 717
Herpesvirus
murine p30 induction, 1028
superinfecting, 1028
Herpesvirus saimiri
heavy and light genome sequences, 154
Hexon transport mutant
Ad5, 643
Histidine operon
ϕ80 transducing phage, 313
S. typhimurium, 313
Host-range mutants
Ad2$^+$ND1 30K protein, 559
Ad2-SV40 hybrids, 559
amphotropic, 13, 19
wild mouse leukemia virus, 13, 19
Human cytomegalovirus
dense bodies, 594
glycoprotein, 594
Human infantile enteritis virus
genome, 267
rotavirus, 267
Human leukocyte interferon
molecular heterogeneity, 525
Hyphomicrobium
phage Hyϕ30, 899

Incomplete particles
adenovirus genome, 685
Influenza virus
glycoprotein formation, suppression of, 782
Influenza A virus
fowl plague virus, 54
recombination, 54
Interferon
human leukocyte, 425
type C virus, 108
Intracellular precursor cleavage
actinomycin D, 1054
Rauscher leukemia virus p30, 1054
Intracisternal type A particle markers
dexamethansone treatment, 709
iododeoxyuridine treatment, 709
Invertebrate iridovirus
iridescent virus type 6, 180
Iododeoxyuridine
intracisternal type A particle markers, 709
type C particle markers, 709
Iridescent virus type 6 (CIV)
nucleotide phosphohydrolase activity, 180

KB cells
Ad12, 36
Kirsten sarcoma-related gene sequence
feline leukemia virus, 346
p30 antigen, 346
type C virus, 346

La Crosse virus
structural proteins, 985
Lambda DNA
cleavage, 1006
site-specific endonuclease, 1006
S. marcescens, 1006
L ceils
avian reovirus, 977
genome transcription, 977
Liposomes
poliovirus type 2, 746
rhinovirus type 2, 746

Membrane microviscosity
fluorescence depolarization, 275
rhabdovirus, 275
Mengovirus
genomic RNA, 743
poly(A), 743
Methanesulfonate
DNA injection, 318
genetic recombination, 318
phage T7, 318
7-Methyl-guanosine
RNA translation, 637
Molluscom contagiosum virus, 382
Moloney leukemia virus RNA
Moloney sarcoma virus, 82
sequence homology, 82
Moloney murine leukemia virus
genomic RNA methylation pattern, 998
Moloney murine sarcoma virus
Moloney leukemia virus RNA, 82
sequence homology, 82
Mouse L cells
VSV, 90
Mouse mammary tumor virus
trypsin, 255
MPC-11 cells
host mRNA translation, 572
VSV, 572
mRNA
Ad2, 286
genome, 286
MPC-11 cells, 572
translation, 572
VSV, 572
mRNA synthesis
deoxycytidylate hydromethylase, 846
dihydrofolate reductase, 846
phage T4, 846
Murine leukemia virus
amphotropic host range, 13, 19
wild mouse, 13, 19
Murine p30

induction, 1028
superinfecting herpesviruses, 1028
Murine RNA tumor virus
nuclear RNA, 31

Neuraminidase
fowl plague virus, 54
Newcastle disease virus
DNA synthesis, 801
thymidine metabolism, 801
transcriptive complex, 1080
N-glycosidase
B. subtilis, 338
Noncapsid proteins
ambiguous processing, 903
rhinovirus 1A, 903
selective degradation, 903
Nuclear polyhedrosis virus
nonoccluded, 820
occluded, 820
T. ni, 820
Nuclear RNA
molecular size, 331
murine RNA tumor virus, 331
Nucleotide phosphohydrolase activity
iridescent virus type 6 (CIV), 180

Oncornavirus RNA
configurational variants, 810

ϕX particles
phage ϕX174, 732
p30 Antigen
Feline leukemia virus, 346
type C virus, 346
Papovavirus
BK human, 675
DNA homology studies, 675
JC human, 675
Particulate reverse transcriptase activity
mouse sera, 1107
type C virus, 1107
Phospholipid
E. coli, 296
phage PR4, 296
Phospholipid membrane
polioviral RNA polymerase, 457
Phospholipid metabolism
phage PM2, 446
Pseudomonas BAL-31, 446
Pneumococcal bacteriophages, 659
Polioviral RNA polymerase
phospholipid membrane, 457
Poliovirus
HeLa cells, 857
Poliovirus type 2
liposomes, 746
rhinovirus type 2, 746
Polyadenylic acid
EMC virus RNA, 325
Polyoma virus
attachment, 620
DNA polymerase induction, 291
nuclear entry, 620
penetration, 620
Polypeptide
CMV, 243
dense bodies, 243
reovirus type 3, 162, 174
Prophage mapping
corynephage β, 208, 228
tox gene, 228
Prophage mu
heterogeneous DNA circles, 756
induction, 756
Protein synthesis
Ad2, 232
chicken embryo cells, 1
cycloheximide pretreatment, 232
SFV, 1
Pseudomonas BAL-31
phage PM2, 446
phospholipid metabolism, 446

Raji cells
DNA replication 187
EBV, 187
superinfection, 187
Rauscher leukemia virus p30
actinomycin D treatment, 1054
intracellular precursor cleavage, 1054
Reovirus
discontinuous gel electrophoresis, 162
polypeptides, 162
Reovirus type 3
polypeptides μ1 and μ2, 174
ts mutants, 174
Retravirus
equine infectious anemia virus, 1073
Rhabdovirus
fish, 275
mammalian, 275
membrane microviscosity, 275
Rhinovirus
noncapsid proteins, 903
tRNA, 760
type 1A, 903
Rhinovirus, human
HeLa cells, 857
Rhinovirus type 2
liposomes, 746
poliovirus type 2, 746
70S RNA
AMV, 760
RNA-A protein complex
phage M12, 792
RNA polymerase
avian REV, 610
polioviral, 457
transcription products, 467

VSV, 467
RNA translation
7-methyl-guanosine, 637
RSV, 950
RNA tumor virus
AMV polymerase, 932
RNA-dependent DNA polymerase, 932
RNA virus
endogenous type C, 890
Rotavirus
genome, 267
human infantile enteritis virus, 267
Rous sarcoma virus
deletion mutant, 389
RNA translation, cell-free, 950
transformation-defective, 950
ts mutant, 389
Rous sarcoma virus-Rous-associated virus-0
ALV, 302
ring-necked pheasant embryo, 302

Salmonella typhimurium
ϕ80 transducing phage, 313
histidine operon, 313
SAMase gene
host restriction, 136
phage T3, 136
Sclerosing panencephalitis virus
bud formation, 579
subacute, 579
Semliki forest virus
chicken embryo cells, 1
glycoprotein formation, suppression of, 782
protein synthesis, 1
Serratia marcescens
λ DNA cleavage, 1006
site-specific endonuclease, 1006
Simian virus 40
BALB/c 3T3, 146
DNA excision, 279
DNA homology studies, 675
heat-inducible mutant, 374
host cell DNA, 279
induction, 279
JC and BK human papovaviruses, 675
Simian virus 40 genome
phage λ operator, 1100
Sindbis virus
A. albopictus, 398, 775
BHK cells, 398
BHK-21 cells, 775
defective interfering particles, 398
defective interfering passages, 1034
defective virion RNA, 1034
ts mutants, 775
Surface antigens
murine cells, 833
VSV, 833

Temperature-sensitive mutants
Ad2, 43
Ad5, 643, 879
phage T4, 915
reovirus type 3, 174
RSV, 389
Sindbis virus, 775
VSV, 90, 102
Thymidine metabolism
NDV, 801
Togavirus membrane
envelope proteins, 126
fluorescence depolarization, 126
microviscosity, 126
tox mutant
corynephage β, 195, 220, 228
genetic mapping, 195, 228
Transcriptional complexes
Ad2, 61
NDV, 1080
Trichoplusia ni
nuclear polyhedrosis virus, 820
tRNA
AMV 70S RNA, 760
Trypsin
mouse mammary tumor virus, 255
Tunicamycin
glycoprotein formation, suppression of, 782
Type C particle markers
dexamethasone treatment, 709
iododeoxyuridine treatment, 709
Type C virus
dexamethasone, 108
feline leukemia virus, 346
interferon, 108
iododeoxyuridine-induced synthesis, 108
Kirsten sarcoma-related gene sequence, 346
mouse sera, 1107
p30 antigen, 346
particulate reverse transcriptase activity, 1107

Uracil-containing DNA
enzymatic degradation, 338

VSV
BHK-21 cells, 102
glycoprotein, 871
glycosylation sites, 871
host mRNA translation 572
mouse L cells, 90
MPC-11 cells, 572
murine cell surface antigens, 833
persistent infections, 90
RNA polymerase, 467
transcription products, 467
ts mutants, 90, 102
wild-type, 102

JOURNAL

OF

VIROLOGY

VOLUME 20

WASHINGTON, D.C. 20006
1976

JOURNAL OF VIROLOGY

VOLUME 20 · 1976

EDITORIAL BOARD

Robert R. Wagner, *Editor-in-Chief* (1977)
University of Virginia School of Medicine, Charlottesville

Dwight L. Anderson, *Editor* (1978)
School of Dentistry, University of Minnesota, Minneapolis

Lennart Philipson, *Editor* (1979)
Biomedical Center Uppsala, Sweden

Myron Levine, *Editor* (1977)
School of Medicine, University of Michigan, Ann Arbor

Aaron J. Shatkin, *Editor* (1977)
The Roche Institute of Molecular Biology, Nutley, N.J.

John P. Bader (1976)
David Baltimore (1978)
David H. L. Bishop (1976)
David Botstein (1976)
Michael A. Bratt (1977)
Dennis T. Brown (1978)
Purnell Choppin (1977)
Richard W. Compans (1976)
Nicholas R. Cozzarelli (1977)
Vittorio Defendi (1976)
David T. Denhardt (1977)
Walter Doerfler (1977)
Elvera Ehrenfeld (1977)
Suzanne U. Emerson (1977)
Raymond L. Erikson (1976)
Erwin J. Fleissner (1977)
Fred R. Frankel (1976)
Richard M. Franklin (1976)
Robert M. Friedman (1976)
Robert C. Gallo (1977)
Harold S. Ginsberg (1976)
Marc Girard (1977)
Angus Graham (1978)
D. MacDonald Green (1977)
Hidesaburo Hanafusa (1977)
John J. Holland (1978)
Calderon Howe (1976)
Alice S. Huang (1978)
Klaus Hummeler (1976)
Paul J. Kaesberg (1976)
George Khoury (1978)
Edwin D. Kilbourne (1976)
David W. Kingsbury (1976)
Lloyd M. Kozloff (1976)
Seymour Lederberg (1976)
Karl Lonberg-Holm (1978)
Ronald B. Luftig (1978)
Brian McAuslan (1976)
Malcolm A. Martin (1978)
Christopher K. Mathews (1976)
Gisela Mosig (1976)
Bernard Moss (1977)
Joseph S. Pagano (1976)
Wade P. Parks (1977)
Elmer R. Pfefferkorn (1976)
Peter G. W. Plagemann (1977)
Robert E. Pollack (1978)
Ludvik A. Prevec (1977)
Craig R. Pringle (1977)
Fred Rapp (1978)
Dan S. Ray (1977)
Bernard E. Reilly (1977)
Bernard Roizman (1976)
Roland R. Rueckert (1976)
Norman P. Salzman (1978)
Joseph Sambrook (1976)
Sondra Schlesinger (1977)
Edward M. Scolnick (1978)
Lee D. Simon (1978)
Kai Simons (1978)
Anna M. Skalka (1977)
Patricia G. Spear (1978)
Donald F. Summers (1976)
William C. Summers (1977)
Howard M. Temin (1976)
Robin Weiss (1976)
John S. Wiberg (1976)
Ernest Winocour (1976)
Julius Youngner (1976)

Robert A. Day, *Managing Editor*
Gisella Pollock, *Director of Editorial Services*
Stephen D. Shifflett, *Production Editor*
1913 I St., N.W., Washington, D.C. 20006

EX OFFICIO

Harlyn O. Halvorson, *President* (1976–1977)
J. Mehsen Joseph, *Secretary*
A. Frederick Rasmussen, Jr., *Vice-President* (1976–1977)
Brinton M. Miller, *Treasurer*

The *Journal of Virology*, a publication of the American Society for Microbiology, 1913 I St., N.W., Washington, D.C. 20006, is devoted to the dissemination of fundamental knowledge concerning viruses of bacteria, plants, and animals. Investigators are invited to submit reports of original research in all areas of basic virology, including biochemistry, biophysics, genetics, immunology, morphology, and physiology. The *Journal* is issued monthly, four volumes per year. The nonmember subscription price is $60 per year, single copies are $6.00. The member subscription price is $15 per year. Correspondence relating to subscriptions, reprints, defective copies, availability of back issues, lost or late proofs, disposition of submitted manuscripts, and general editorial matters should be directed to the ASM Publications Office, 1913 I St., N.W., Washington, D.C. 20006 (area 202 833-9680).

Second-class postage paid at Washington, D.C. 20006, and at additional mailing offices.
Made in the U.S.A.
Copyright © 1976, American Society for Microbiology.
All Rights Reserved.

Volume 20

Contents for October

Number 1

Animal Viruses

Homologous Interference of Lymphocytic Choriomeningitis Virus: Detection and Measurement of Interference Focus-Forming Units. MIRCEA POPESCU, HORST SCHAEFER, AND FRITZ LEHMANN-GRUBE* 1

Origin of Polyoma Virus-Associated Endonuclease. P. ROUGET, A. PARODI, D. BLANGY, AND F. CUZIN* 9

Characterization of Ribonucleoproteins and Ribosomes Isolated from Lymphocytic Choriomeningitis Virus. IB R. PEDERSEN* AND ELAINE PRIZANT KØNIGSHØFER 14

Multiplication of Parvovirus LuIII in a Synchronized Culture System. IV. Association of Viral Structural Polypeptides with the Host Cell Chromatin. MARKUS GAUTSCHI,* GÜNTER SIEGL, AND GERTRUD KRONAUER 29

Simian Virus 40 Mutants Carrying Two Temperature-Sensitive Mutations. JANICE Y. CHOU 39

Influenza Viral mRNA Contains Internal N^6-Methyladenosine and 5'-Terminal 7-Methylguanosine in Cap Structures. ROBERT M. KRUG,* MAUREEN A. MORGAN, AND AARON J. SHATKIN 45

Consequences of Herpes Simplex Virus Type 2 and Human Cell Interaction at Supraoptimal Temperatures. MARIO J. MARCON AND LOUIS S. KUCERA* ... 54

Simian Virus 40 DNA Replication in Nuclear Monolayers. DONALD J. LE BLANC* AND MAXINE F. SINGER 78

Isolation and Structural Characterization of Monomeric and Dimeric Forms of Replicative Intermediates of Kilham Rat Virus DNA. M. GUNTHER* AND P. MAY 86

Analysis of Intracellular Feline Leukemia Virus Proteins. I. Identification of a 60,000-Dalton Precursor of Feline Leukemia Virus p30. GREGORY F. OKASINSKI AND LELAND F. VELICER* 96

Characterization of Polysome-Associated RNA from Influenza Virus-Infected Cells. D. P. NAYAK,* EMMA D'ANDREA, AND F. O. WETTSTEIN 107

Methylation of High-Molecular-Weight Subunit RNA of Feline Leukemia Virus. ARLEN R. THOMASON, DAVID A. BRIAN, LELAND F. VELICER, AND FRITZ M. ROTTMAN* 123

Polyoma Genome in Hamster BHK-21-C13 Cells: Integration into Cellular DNA and Induction of the Viral Replicon. WILLIAM R. FOLK* AND JANE E. BANCUK 133

Synthesis of RNA by Mutants of Vesicular Stomatitis Virus (Indiana Serotype) and the Ability of Wild-Type VSV New Jersey to Complement the VSV Indiana *ts* G I-114 Transcription Defect. PATRICIA REPIK, ANNE FLAMAND, AND DAVID H. L. BISHOP* 157

Polyadenylate Sequences of Human Rhinovirus and Poliovirus RNA and Cordycepin Sensitivity of Virus Replication. C. N. NAIR* AND D. L. PANICALI 170

Semliki Forest Virus Capsid Protein Associates with the 60S Ribosomal Subunit in Infected Cells. ISMO ULMANEN,* HANS SÖDERLUND, AND LEEVI KÄÄRIÄINEN 203

Sequence Arrangement in Herpes Simplex Virus Type 1 DNA: Identification of Terminal Fragments in Restriction Endonuclease Digests and Evidence for Inversions in Redundant and Unique Sequences. NEIL M. WILKIE* AND RITA CORTINI 211

* Asterisk refers to person to whom inquiries regarding the paper should be addressed.

Physical Maps for Herpes Simplex Virus Type 1 DNA for Restriction Endonucleases *Hind* III, *Hpa*-1, and *X. bad*. NEIL M. WILKIE 222

Generation of Defective Virus After Infection of Newborn Rats with Reovirus. D. A. SPANDIDOS AND A. F. GRAHAM* 234

Selection and Identification of Influenza Virus Recombinants of Defined Genetic Composition. JEROME L. SCHULMAN AND PETER PALESE* 248

mRNA from the Transforming Segment of the Adenovirus 2 Genome in Productively Infected and Transformed Cells. G. CHINNADURAI,* HYUNE M. RHO, ROBERT B. HORTON, AND MAURICE GREEN 255

Size, Subunit Composition, and Secondary Structure of the Friend Virus Genome. SHYAM DUBE, HSING-JIEN KUNG, WELCOME BENDER, NORMAN DAVIDSON,* AND WOLFRAM OSTERTAG 264

Three Structural Polypeptides Coded for by Minute Virus of Mice, a Parvovirus. PETER TATTERSALL, PATRICIA J. CAWTE, AARON J. SHATKIN, AND DAVID C. WARD* 273

DNA of Minute Virus of Mice: Self-Priming, Nonpermuted, Single-Stranded Genome with a 5′-Terminal Hairpin Duplex. GERARD J. BOURGUIGNON, PETER J. TATTERSALL, AND DAVID C. WARD* 290

Mapping of the Influenza Virus Genome. III. Identification of Genes Coding for Nucleoprotein, Membrane Protein, and Nonstructural Protein. MARY B. RITCHEY, PETER PALESE,* AND JEROME L. SCHULMAN 307

Use of a Restriction Endonuclease in Analyzing the Genomes from Two Different Strains of Vaccinia Virus. J. DAVID GANGEMI* AND D. GORDON SHARP 319

5′-Terminus of Moloney Murine Leukemia Virus 35*S* RNA is $m^7G^{5'}ppp^{5'}GmpCp$. JOHN K. ROSE,* WILLIAM A. HASELTINE, AND DAVID BALTIMORE 324

RNA Complementary to the Genome of RNA Tumor Viruses in Virions and Virus-Producing Cells. EDWARD STAVNEZER,* GORDON RINGOLD, HAROLD E. VARMUS, AND J. MICHAEL BISHOP 342

Purification of the α Subunit of Avian Myeloblastosis Virus DNA Polymerase by Polyuridylic Acid-Sepharose. DUANE P. GRANDGENETT 348

Recombination and Complementation Between Temperature-Sensitive Mutants of a Bunyavirus, Snowshoe Hare Virus. JON GENTSCH AND DAVID H. L. BISHOP* 351

Bacterial Viruses

Prophage Mutation Causing Heat Inducibility of Defective *Bacillus subtilis* Bacteriophage PBSX. R. S. BUXTON 22

Mapping of Two Isoleucine tRNA Isoacceptor Genes in Bacteriophage T5 DNA. CLAYTON HUNT, LIAO-TSUEN HWANG, AND SAMUEL B. WEISS* 63

Exonuclease Associated with Bacteriophage T5-Induced DNA Polymerase. SHISHIR K. DAS* AND ROBERT K. FUJIMURA 70

Replicative Bacteriophage DNA Synthesis in Plasmolyzed T4-Infected Cells: Evidence for Two Independent Pathways to DNA. MERLE G. WOVCHA, CHE-SHEN CHIU, PAUL K. TOMICH, AND G. ROBERT GREENBERG* 142

Genetic Studies of Coliphage P1. III. Extended Genetic Map. DONALD H. WALKER, JR.,* AND JEAN TWEEDY WALKER 177

Restriction and Modification in *Bacillus subtilis*: Inducibility of a DNA Methylating Activity in Nonmodifying Cells. URSULA GÜNTHERT,* BRIGITTE PAWLEK, JOAN STUTZ, AND THOMAS A. TRAUTNER 188

Physicochemical Characterization of the Male-Specific RNA Bacteriophage $\mu 2$: Serological Comparison with R17, fr, and $Q\beta$. JEAN-CLAUDE PIFFARETTI* AND JEAN-SAMUEL PITTON 314

Read-Through Proteins of Group 4 RNA Bacteriophages TW19 and TW28. TAKESHI AOI AND PAUL KAESBERG* 330

Bacteriophage-Specific DNA-Binding Proteins in P22-Lysogenic and in P22-Infected *Salmonella typhimurium*. WOLFGANG SCHUMANN,* EDITH LINDENBLATT, AND ERNESTO G. BADE 334

Genetic Evidence that *Bacillus* Bacteriophage ϕ105 Integrates by Insertion. D. H. DEAN,* M. ARNAUD, AND H. O. HALVORSON 339

Plant Viruses

Interaction of Elongation Factor 1 with Aminoacylated Brome Mosaic Virus and tRNA's. MARCEL BASTIN AND TIMOTHY C. HALL* 117

In Vitro Synthesis of Turnip Yellow Mosaic Virus Coat Protein in a Wheat Germ Cell-Free System. C. BENICOURT AND A. L. HAENNI* 196

Volume 20 Contents for November Number 2

Animal Viruses

Transcription of the Genome of Adenovirus Type 12. III. Maps of Stable RNA from Productively Infected Human Cells and Abortively Infected and Transformed Hamster Cells. JUAN ORTIN, KARL-HEINZ SCHEIDTMANN, RONA GREENBERG, MONIKA WESTPHAL, AND WALTER DOERFLER* 355

Intracellular Forms of Adenovirus DNA. V. Viral DNA Sequences in Hamster Cells Abortively Infected and Transformed with Human Adenovirus Type 12. ELLEN FANNING AND WALTER DOERFLER* 373

Infection of Resistant Avian Cells by Subgroup B Rous Sarcoma Virus. MAXINE LINIAL 384

Simian Virus 40-Permissive Cell Interactions: Selection and Characterization of Spontaneously Arising Monkey Cells That Are Resistant to Simian Virus 40 Infection. JOHN H. WILSON,* MEL DEPAMPHILIS, AND PAUL BERG 391

Herpes Simplex Virus Gene Expression in Transformed Cells. I. Regulation of the Viral Thymidine Kinase Gene in Transformed L Cells by Products of Superinfecting Virus. JEFFREY M. LEIDEN, RALPH BUTTYAN, AND PATRICIA G. SPEAR* 413

Multiple Methylated Cap Sequences in Adenovirus Type 2 Early mRNA. SHU-ICHI HASHIMOTO AND MAURICE GREEN* 425

Mouse Strain Resistant to N-, B-, and NB-Tropic Murine Leukemia Viruses. KAZUSHIGE KAI, HIDETOSHI IKEDA, YASUHITO YUASA, SEIKICHI SUZUKI, AND TAKESHI ODAKA* 436

Replication of Semliki Forest Virus: Polyadenylate in Plus-Strand RNA and Polyuridylate in Minus-Strand RNA. DOROTHEA L. SAWICKI* AND PETER J. GOMATOS 446

Genome Expression and mRNA Maturation at Late Stages of Productive Adenovirus Type 2 Infection. WILLIAM S. M. WOLD,* MAURICE GREEN, KARL H. BRACKMANN, MARIA A. CARTAS, AND CATHERINE DEVINE 465

Enzymatic Basis for the Selective Inhibition of Varicella-Zoster Virus by 5-Halogenated Analogues of Deoxycytidine. MICHAEL J. DOBERSEN,* MARYANN JERKOFSKY, AND SHELDON GREER 478

Respiratory Syncytial Virus *ts* Mutants and Nuclear Immunofluorescence. GEORGINE P. FAULKNER, P. V. SHIRODARIA, E. A. C. FOLLETT, AND C. R. PRINGLE* 487

Presence of Murine Leukemia Virus Envelope Proteins gp70 and p15(E) in a Common Polyprotein of Infected Cells. NANCY G. FAMULARI,* DOROTHY L. BUCHHAGEN, HANS-DIETER KLENK, AND ERWIN FLEISSNER 501

Structural Proteins of Polyoma Virus: Proteolytic Degradation of Virion Proteins by Exogenous and by Virion-Associated Proteases. THEODORE FRIEDMANN . 520

Anatomy of Herpes Simplex Virus DNA. VI. Defective DNA Originates from the S Component. N. FRENKEL, H. LOCKER, W. BATTERSON, G. S. HAYWARD, AND B. ROIZMAN* 527

Nature of the Single-Stranded DNA in Replicating Adenovirus Type 5 DNA. JOHN S. SUSSENBACH,* ASLIHAN TOLUN, AND ULF PETTERSSON 532

Two Adenovirus Type 2-Simian Virus 40 Hybrid Populations That Contain the Entire SV40 Genome Differ in Their Ability to Induce SV40 Transplantation Immunity in Hamsters but Not in Mice. SATVIR S. TEVETHIA* AND ANDREW M. LEWIS, JR. 539

Bacterial Viruses

Bacterial *rep*⁻ Mutations That Block Development of Small DNA Bacteriophages Late in Infection. ETHEL S. TESSMAN* AND PATRICIA K. PETERSON 400

Evidence That Mismatched Bases in Heteroduplex T4 Bacteriophage Are Recognized In Vivo. HILLARD BERGER AND DREW PARDOLL 441

New Temperate Bacteriophage for *Bacillus subtilis*, ρ11. DONALD H. DEAN,* J. CRISTIAN ORREGO, KEITH W. HUTCHISON, AND HARLYN O. HALVORSON 509

Bacteriophage PBS2-Induced Inhibition of Uracil-Containing DNA Degradation. GUY E. KATZ, ALAN R. PRICE,* AND MARC J. POMERANTZ 535

Errata

Utilization of Early Promotors in Mutant *far*P85 of Bacteriophage T4. WALTER SAUERBIER,* KATHLEEN HERCULES, AND DWIGHT H. HALL 543

SP62, a Viable Mutant of Bacteriophage T4 Defective in Regulation of Phage Enzyme Synthesis. JOHN S. WIBERG, STEVEN MENDELSOHN, VIRGINIA WARNER, KATHLEEN HERCULES, CYNTHIA ALDRICH, AND JUDITH L. MUNRO .. 543

Volume 20 Contents for December Number 3

Animal Viruses

Induction of G_{IX} Antigen and Gross Cell Surface Antigen After Infection by Ecotropic and Xenotropic Murine Leukemia Viruses In Vitro. P. V. O'DONNELL* AND E. STOCKERT 545

Content and Expression of Integrated Viral DNA in Hamster Cells Transformed by Nondefective Adenovirus Type 2-Simian Virus 40 Hybrid Viruses. JAMES M. BREEDEN, YVONNE WEWERKA-LUTZ, LOWELL E. SCHNIPPER, JANET HAUSER, CEPHAS T. PATCH, ANDREW M. LEWIS, JR., AND ARTHUR S. LEVINE* . 555

Distinguishing Cytomegalovirus, Mycoplasma, and Cellular DNA Polymerases. RICHARD L. MILLER AND FRED RAPP* 564

Type C Particle-Positive and Type C Particle-Negative Rat Cell Lines: Characterization of the Coding Capacity of Endogenous Sarcoma Virus-Specific RNA. EDWARD M. SCOLNICK,* DAVID WILLIAMS, JEAN MARYAK, WILLIAM VASS, ROBERT J. GOLDBERG, AND WADE P. PARKS 570

RNA Synthesis in Cells Infected with Herpes Simplex Virus. XIII. Differences in

the Methylation Patterns of Viral RNA During the Reproductive Cycle. MICHAEL BARTKOSKI AND BERNARD ROIZMAN* 583

Genetic Evidence for a Product of the Fv-1 Locus That Transfers Resistance to Mouse Leukemia Viruses. RAYMOND W. TENNANT,* BONNIE SCHLUTER, FRED E. MYER, JAMES A. OTTEN, WEN-KUANG YANG, AND ARTHUR BROWN . 589

Effect of Hypertonic Medium on Protein Synthesis of Mahoney and LSc Poliovirus. DANIEL R. TERSHAK 597

Analysis of Structural Polypeptides of Purified Human Cytomegalovirus. K. S. KIM,* V. J. SAPIENZA, R. I. CARP, AND H. M. MOON 604

Formation of a Sindbis Virus Nonstructural Protein and Its Relation to 42S mRNA Function. MOSHE BRACHA, ARTURO LEONE, AND MILTON J. SCHLESINGER* . 612

Infectious, Linear, Unintegrated DNA of Moloney Murine Leukemia Virus. DAVID SMOTKIN, FAYTH K. YOSHIMURA, AND ROBERT A. WEINBERG* 621

Analysis of the Envelope of Rauscher Murine Oncornavirus: In Vitro Labeling of Glycopeptides. W. L. MCLELLAN* AND J. T. AUGUST 627

Association of Vesicular Stomatitis Virus Proteins with HeLa Cell Membranes and Released Virus. LAWRENCE A. HUNT* AND DONALD F. SUMMERS 637

Glycosylation of Vesicular Stomatitis Virus Glycoprotein in Virus-Infected HeLa Cells. LAWRENCE A. HUNT* AND DONALD F. SUMMERS 646

Asymmetric Distribution of Phosphatidylethanolamine in the Membrane of Vesicular Stomatitis Virus. BESSIE S. FONG, RICHARD C. HUNT, AND JAY C. BROWN* 658

Segmented Genome and Nucleocapsid of La Crosse Virus. JOHN F. OBIJESKI,* DAVID H. L. BISHOP, ERSKINE L. PALMER, AND FREDERICK A. MURPHY 664

Purification and Composition of the Proteins from Sindbis Virus Grown in Chick and BHK Cells. DAVID J. BURKE* AND KENNETH KEEGSTRA 676

Ultrastructural Studies of Hepatitis A Virus by Electron Microscopy. E. H. COOK, JR.,* D. W. BRADLEY, C. R. GRAVELLE, AND J. E. MAYNARD 687

L Cell Virus: Infectivity for Type N and B Mouse Embryo Cells. S. BOTIS,* M. JANOWSKI, AND J. R. MAISIN 690

INDEX TO DATE OF ISSUE

Month	Date of Issue	Pages
October	6 October 1976	1–354
November	30 October 1976	355–543
December	23 November 1976	545–692

AUTHOR INDEX

VOLUME 20

Aoi, Takeshi, 330
Arnaud, M., 339
August, J. T., 627

Bade, Ernesto G., 324
Baltimore, David, 324
Bancuk, Jane E., 133
Bartkoski, Michael, 583
Bastin, Marcel, 117
Batterson, W., 527
Bender, Welcome, 264
Benicourt, C., 196
Berg, Paul, 391
Berger, Hillard, 441
Bishop, David H. L., 157, 351, 664
Bishop, J. Michael, 342
Blangy, D., 9
Botis, S., 690
Bourguignon, Gerald J., 290
Bracha, Moshe, 612
Brackman, Karl H., 465
Bradley, D. W., 687
Breeden, James H., 555
Brian, David A., 123
Brown, Arthur, 589
Brown, Jay C., 658
Buchhagen, Dorothy L., 501
Burke, David J., 676
Buttyan, Ralph, 413
Buxton, R. S., 22

Carp, R. I., 604
Cartas, Maria A., 465
Cawte, Patricia J., 273
Chinnadurai, G., 255
Chiu, Che-Shen, 142
Chou, Janice Y., 39
Cook, E. H., Jr., 687
Cortini, Rita, 211
Cuzin, F., 9

D'Andrea, Emma, 107
Das, Shishir K., 70
Davidson, Norman, 264
Dean, Donald H., 339, 509
DePhamphilis, Mel, 391
Devine, Catherine, 465
Dobersen, Michael J., 478
Doerfler, Walter, 355, 373
Dube, Shyam, 264

Famulari, Nancy G., 501
Fanning, Ellen, 373
Faulkner, Georgine P., 487
Flamand, Anne, 157
Fleissner, Erwin, 501
Folk, William R., 133
Follett, E. A. C., 487
Fong, Bessie S., 658
Frenkel, N., 527
Friedmann, Theodore, 520
Fujimura, Robert K., 70

Gangemi, J. David, 319
Gautschi, Markus, 29
Gentsch, Jon, 351
Goldberg, Robert J., 570
Gomatos, Peter J., 446
Graham, A. F., 234
Grandgenett, Duane P., 348
Gravelle, C. R., 687
Green, Maurice, 255, 425, 465
Greenberg, G. Robert, 142
Greenberg, Rona, 355
Greer, Sheldon, 478
Gunther, M., 86
Günthert, Ursula, 188

Haenni, A. L., 196
Hall, Timothy C., 117
Halvorson, Harlyn O., 339, 509
Haseltine, William A., 324
Hashimoto, Shu-ichi, 425
Hauser, Janet, 555
Hayward, G. S., 527
Horton, Robert B., 255
Hunt, Clayton, 63
Hunt, Lawrence A., 637, 646
Hunt, Richard C., 658
Hutchison, Keith W., 509
Hwang, Liao-Tsuen, 63

Ikeda, Hidetoshi, 436

Janowski, M., 690
Jerkofsky, Maryann, 478

Kääriäinen, Leevi, 203
Kaesberg, Paul, 330
Kai, Kazushige, 436
Katz, Guy E., 535
Keegstra, Kenneth, 676
Kim, K. S., 604
Klenk, Hans-Dieter, 501
Kønigshøfer, Elaine Prizant, 14
Kronauer, Gertrud, 29
Krug, Robert M., 45

Kucera, Louis S., 54
Kung, Hsing-Jien, 264

Le Blanc, Donald J., 78
Lehmann-Grube, Fritz, 1
Leiden, Jeffrey M., 413
Leone, Arturo, 612
Levine, Arthur S., 555
Lewis, Andrew M., Jr., 539, 555
Lindenblatt, Edith, 334
Linial, Maxine, 384
Locker, H., 527

McLellan, W. L., 627
Maisin, J. R., 690
Marcon, Mario J., 54
Maryak, Jean, 570
May, P., 86
Maynard, J. E., 687
Miller, Richard L., 564
Moon, H. M., 604
Morgan, Maureen A., 45
Murphy, Frederick A., 664
Myer, Fred E., 589

Nair, C. N., 170
Nayak, D. P., 107

Obijeski, John F., 664
Odaka, Takeshi, 436
O'Donnell, P. V., 545
Okasinski, Gregory F., 96
Orrego, J. Cristian, 509
Ortin, Juan, 355
Ostertag, Wolfram, 264
Otten, James A., 589

Palese, Peter, 248, 307
Palmer, Erskine L.,664
Panicali, D. L., 170
Pardoll, Drew, 441
Parks, Wade P., 570
Parodi, A., 9
Patch, Cephas T., 555
Pawlek, Brigitte, 188
Pedersen, Ib R., 14
Peterson, Patricia K., 400
Pettersson, Ulf, 532
Piffaretti, Jean-Claude, 314
Pitton, Jean-Samuel, 314
Pomerantz, Marc J., 535
Popescu, Mircea,
Price, Alan R., 535
Pringle, C. R., 487

Rapp, Fred, 564
Repik, Patricia, 157
Rho, Hyune M., 255
Ringold, Gordon, 342
Ritchey, Mary B., 307
Roizman, Bernard, 527, 583
Rose, John K., 324
Rottman, Fritz M., 123
Rouget, P., 9

Sapienza, V. J., 604
Sawicki, Dorothea L., 446
Schaefer, Horst, 1
Scheidtmann, Karl-Heinz, 355
Schlesinger, Milton J., 612
Schluter, Bonnie, 589
Schnipper, Lowell E., 555
Schulman, Jerome L., 248, 307
Schumann, Wolfgang, 334
Scolnick, Edward M., 570
Sharp, D. Gordon, 319
Shatkin, Aaron J., 45, 273
Shirodaria, P. V., 487
Siegl, Günter, 29
Singer, Maxine F., 78
Smotkin, David, 621
Söderlund, Hans, 203
Spandidos, D. A., 234
Spear, Patricia G., 413
Stavnezer, Edward, 342
Stockert, E., 545
Stutz, Joan, 188
Summers, Donald F., 637, 646
Sussenbach, John S., 532
Suzuki, Seikichi, 436

Tattersall, Peter J., 273, 290
Tennant, Raymond W., 589
Tershak, Daniel R., 597
Tessman, Ethel S., 400
Tevethia, Satvir S., 539
Thomason, Arlen R., 123
Tolun, Aslihan, 532
Tomich, Paul K., 142
Trautner, Thomas A., 188

Ulmanen, Ismo, 203

Varmus, Harold E., 342
Vass, William, 570
Velicer, Leland F., 96, 123

Walker, Donald H., Jr., 177
Walker, Jean Tweedy, 177
Ward, David C., 273, 290
Weinberg, Robert A., 621
Weiss, Samuel B., 63
Westphal, Monika, 355
Wettstein, F. O., 107
Wewerka-Lutz, Yvonne, 555
Wilkie, Neil M., 211, 222
Williams, David, 570
Wilson, John H., 391
Wold, William S. M., 465
Wovcha, Merle G., 142

Yang, Wen-Kuang, 589
Yoshimura, Fayth K., 621
Yuasa, Yasuhito, 436

SUBJECT INDEX

VOLUME 20

Adenovirus type 2
  early mRNA, 425
  genome, 255, 465
  methylated cap sequence, 425
  mRNA, 255, 465
Adenovirus type 2-simian virus 40 hybrid
  DNA expression, 555
  nondefective, 555
  SV40 genome, 539
  SV40 transplantation immunity, 539
Adenovirus type 5
  DNA replication, 532
  single-stranded DNA, 532
Adenovirus type 12
  BHK-21 cells, 355, 373
  genome transcription, 355
  KB cells, 355
African green monkey kidney cells
  permissive cells, 391
  SV40 infection, 391
Avian myeloblastosis virus
  DNA polymerase, 348
  α subunit, 348

Bacillus subtilis
  DNA methylation, 188
  phage ϕ105, 339
  phage PBSX, 22
  prophage mutation, 22
  temperate phage ρ11, 509
Bacteriophage μ2
  phage fr, 314
  phage Qβ, 314
  phage R17, 314
Bacteriophage ρ11
  B. subtilis, 509
Bacteriophage ϕ105
  B. subtilis, 339
  integration, 339
Bacteriophage P22
  DNA-binding proteins, 334
  S. typhimurium, 334
Bacteriophage PBS2
  B. subtilis, 535
  DNA degradation, 535
Bacteriophage PBSX
  B. subtilis, 22
  prophage mutation, 22
Bacteriophage SPP1
  B. subtilis, 188
  DNA methylation, 188
Bacteriophage T4
  DNA synthesis, 142
  E. coli, 142, 441
  heteroduplex, 441
  mismatched bases, 441
Bacteriophage T5
  DNA polymerase, 70
  exonuclease, 70
Bacteriophage T5 DNA
  isoacceptor genes, 63
  isoleucine tRNA, 63
Bacteriophage TW19
  read-through proteins, 330
Bacteriophage TW28
  read-through proteins, 330
BHK-21 cells
  Ad12, 355, 373
  cellular DNA, 133
  polyoma genome, 133
  Sindbis virus, 676
  viral replicon, 133
Brome mosaic virus
  aminoacylated, 117
  elongation factor 1, 117
  tRNA, 117
Bunyavirus
  snowshoe hare virus, 351

Capsid protein
  60S ribosomal subunit, 203
  SFV, 203
Cap structure
  influenza virus, 45
  N^6-methyladenosine, 45
  7-methylguanosine, 45
Chicken embryo fibroblasts
  influenza virus-infected, 107
  polysome-associated RNA, 107
  RSV, 384
  Sindbis virus, 676
Chromatin
  host cell, 29
  parvovirus LuIII, 29
  structural polypeptides, 29
Coat protein
  TYMV, 196
  wheat germ cell-free system, 196
Coliphage P1
  genetic map, 177
Cordycepin
  human rhinovirus RNA, 170
  poliovirus RNA, 170
  poly(A) sequence, 170

Cytomegalovirus
DNA polymerase, 564
human, 604
mycoplasma, 564
structural polypeptides, 604

Defective interference particles
CMV virus, 1
focus-forming units, 1
Deoxycytidine
5-halogenated analogues, 478
Varicella-Zoster inhibition, 478
DNA bacteriophage
E. coli, 400
rep⁻ mutants, 400
DNA-binding proteins
phage P22-infected *S. typhimurium*, 334
DNA degradation
phage PBS2, 535
uracil-containing, 535
DNA methylation
B. subtilis, 188
phage SPP1, 188
DNA polymerase
AMV, 348
CMV, 564
exonuclease, 70
mycoplasma, 564
phage T5, 70
α subunit, 348
DNA replication
Ad5, 532
nuclear monolayers, 78
single-stranded, 532
SV40, 78
Double mutant
SV40, 39

Elongation factor 1
aminoacylated brome mosaic virus, 117
tRNA, 117
Endonuclease
polyoma virus, 1
Envelope protein
gp70, 501
MuLV, 501
p15(E), 501
Escherichia coli
DNA synthesis, 142
phage T4, 142, 441
Exonuclease
DNA polymerase, 70
phage T5, 70

Feline leukemia virus
p30 protein, 97
precursor polypeptide, 97
subunit RNA, 123
Friend virus
genome, 264
Fv-1 locus
mouse leukemia virus, 589

G_{IX} antigen
Gross cell surface antigen, 545
MuLV, 545
Genome
Ad2 mRNA, 255
Ad12, 355
Friend virus, 264
influenza virus, 307
La Crosse virus, 664
minute virus of mice, 290
restriction endonuclease, 319
RNA tumor virus, 342
segmented, 664
SV40, 539
5′-terminal hairpin duplex, 290
transcription, 355
transforming segment, 255
vaccinia virus, 319
Genome expression
Ad2 infection, 465
mRNA maturation, 465
Glycopeptides
Rauscher murine oncornavirus, 627
Glycoprotein
VSV-infected HeLa cells, 646
Gross cell surface antigen
G_{IX} antigen, 545
MuLV, 545

HeLa cells
glycoprotein, 646
membrane association, 637
VSV, 637, 646
Hepatitis A virus
ultrastructure studies, 687
Herpes simplex virus
defective DNA, 527
gene expression, 413
Justin strain, 527
L cells, 413
methylation, 583
reproductive cycle, 583
RNA synthesis, 583
S component, 527
superinfecting, 413
thymidine kinase gene, 413
Herpes simplex virus type 1 DNA
inversion, 211
redundant sequences, 211
restriction endonuclease, 211, 222
terminal fragment, 211
unique sequence, 211

Herpes simplex virus type 2
human embryonic fibroblast cells, 54
Heterozygotes
mismatched bases, 441
phage T4, 441
Human embryonic fibroblast cells
HSV-2, 54
Human rhinovirus RNA
cordycepin sensitivity, 170
poliovirus RNA, 170
poly(A) sequences, 170

Influenza virus
CEF cells, 107
genome, 307
N^6-methyladenosine, 45
7-methylguanosine, 45
mRNA, 45
polysome-associated RNA, 107
recombinants, 248
Influenza virus genome
membrane protein, 307
nonstructural protein, 307
nucleoprotein, 307
Interference
focus-forming units, 1
LCM virus, 1
Isoacceptor genes
isoleucine tRNA, 63
phage T5 DNA, 63
Isoleucine tRNA
isoacceptor genes, 63
phage T5, 63

KB cells
Ad12, 355
Kilham rat virus DNA
rat fibroblast cells, 86
replicative intermediate, 86
Kirsten sarcoma virus
coding capacity, 570
endogenous RNA, 570
type C rat cell lines, 570
La Crosse virus
nucleocapsid, 664
segmented genome, 664
L cells
HSV gene expression, 413
thymidine kinase gene, 413
L cell virus
B-type mouse embryo cells, 690
N-type mouse embryo cells, 690
LSc poliovirus
protein synthesis, 597
Lymphocytic choriomeningitis virus
homologous interference, 1
interference focus-forming units, 1
ribonucleoproteins, 14
ribosomes, 14

Mahoney poliovirus
protein synthesis, 597
Methylated cap sequences
Ad2 early mRNA, 425
Minute virus of mice
genome, 290
parvovirus, 273, 290
structural polypeptides, 273
Moloney murine leukemia virus
35*S* RNA, 324
5-terminus, 324
unintegrated DNA, 621
Mouse embryo cell
B-type, 690
L cell virus, 690
N-type, 690
Mouse leukemia virus
B-tropic, 589
Fv-1 locus, 589
N-tropic, 589
Mouse strain G
MuLV, 436
NB tropism, 436
mRNA
Ad2, 255, 425, 465
cap structure, 45
early, 425
genome, 255, 465
influenza virus, 45
maturation, 465
methylated cap sequences, 425
42*S*, 612
Sindbis virus nonstructural protein, 612
Murine leukemia virus
B-tropic, 436
ecotropic, 545
envelope proteins gp70 and p15(E), 501
G_{IX} antigen, 545
Gross cell surface antigen, 545
mouse strain G, 436
mRNA, 621
NB-tropic, 436
N-tropic, 436
polyprotein, 501
xenotropic, 545
Mycoplasma
cytomegalovirus, 564
DNA polymerase, 564

NB tropism
mouse strain G, 436
MuLV, 436
Nonstructural protein
42*S* mRNA, 612
Sindbis virus, 612
Nuclear immunofluorescence
respiratory syncytial virus *ts* mutants, 487

Nuclear monolayers
DNA replication, 78
SV40, 78
Nucleocapsid
La Crosse virus, 664

Parvovirus
minute virus of mice, 273, 290
structural polypeptides, 273
Parvovirus LuIII
host cell chromatin, 29
structural polypeptides, 29
Permissive cells
African green monkey kidney cells, 391
SV40-resistant, 391
Phosphatidylethanolamine
asymmetric distribution, 658
VSV membrane, 658
Poliovirus
LSc, 597
Mahoney, 597
Poliovirus RNA
cordycepin sensitivity, 170
human rhinovirus RNA, 170
poly(A) sequences, 170
Polyadenylate
SFV RNA, 446
Polyadenylate sequence
human rhinovirus RNA, 170
poliovirus RNA, 170
Polyoma genome
BHK-21 cells, 133
cellular DNA, 133
viral replicon, 133
Polyoma virus
endonuclease, 9
proteolytic degradation, 520
structural proteins, 520
Polypeptides, structural
host cell chromatin, 29
parvovirus LuIII, 29
Polyprotein
envelope proteins gp70 and p15(E), 501
MuLV, 501
Polysome-associated RNA
influenza virus-infected CEF cells, 107
Polyuridylate
SFV RNA, 446
p30 Protein
FeLV, 97
precursor polypeptide, 97
Precursor polypeptide
FeLV, 96
p30 protein, 96
Prophage mutation
B. subtilis, 22
phage PBSX, 22
Proteolytic degradation
exogenous protease, 520
polyoma virus structural proteins, 520
virion-associated protease, 520

Rauscher murine oncornavirus
envelope, 627
glycopeptides, 627
Read-through proteins
RNA phages TW19 and TW28, 330
Recombinants
influenza virus, 248
Reovirus
ts mutant, 234
Replicative bacteriophage
DNA synthesis, 142
E. coli, 142
plasmolyzed T4-infected cells, 142
Replicative intermediate
dimeric form, 86
Kilham rat virus DNA, 86
monomeric form, 86
rep$^-$ mutation
DNA bacteriophage, 400
E. coli, 400
Respiratory syncytial virus
nuclear immunofluorescence, 487
ts mutants, 487
Restriction endonuclease
Hind III, 222
H. influenzae, 319
Hpa-1, 222
HSV-1, 211
sequence arrangement, 211
terminal fragment, 211
vaccinia virus, 319
X. bad, 222
Ribonucleoproteins
LCM virus, 14
ribosomes, 14
60S Ribosomal subunit
capsid protein, 203
SFV, 203
Ribosome
LCM virus, 14
ribonucleoproteins, 14
35S RNA
M-MuLV, 324
5′-terminus, 324
RNA bacteriophage
TW19, 330
TW28, 330
RNA male-specific bacteriophage
phage Qβ, 314
RNA, minus-strand
SFV replication, 446
RNA, plus-strand
SFV replication, 446
RNA synthesis
HSV, 583

methylation pattern, 583
VSV, 157
RNA tumor virus
complementary RNA, 342
genome, 342
Rous sarcoma virus
chicken fibroblast cells, 384

Salmonella typhimurium
DNA-binding proteins, 334
P22-infected, 334
P22-lysogenic, 334
Semliki forest virus
capsid protein
HeLa cells, 203
minus-strand RNA, 446
plus-strand RNA, 446
poly(A), 446
poly(U), 446
replication, 446
60S ribosomal subunit, 203
Simian virus 40
Ad2-SV40 hybrid, 539
African green monkey kidney cells, 391
DNA replication, 78
double mutant, 39
genome, 539
nuclear monolayers, 78
permissive cell interactions, 391
transplantation immunity, 539
ts mutant, 39
Sindbis virus
BHK cells, 676
chicken embryo cells, 676
42S mRNA, 612
nonstructural protein, 612
Snowshoe hare virus
complementation, 351
recombination, 351
temperature-sensitive mutants, 351
Structural polypeptide
human cytomegalovirus, 604
minute virus of mice, 273
parvovirus, 273
Structural protein
polyoma virus, 520
proteolytic degradation, 520
Subunit RNA
FeLV, 123
high-molecular-weight, 123
methylation, 123

Temperate bacteriophage
B. subtilis, 509
ρ11, 509

Temperature-sensitive mutants
nuclear immunofluorescence, 487
reovirus, 234
respiratory syncytial virus, 487
snowshoe hare virus, 351
SV40, 39
VSV, 157
Thymidine kinase
HSV gene expression, 413
L cells, 413
Transcription
Ad12 genome, 355
Transcription defect
RNA synthesis, 157
VSV, 157
Transplantation immunity
SV40, 539
tRNA
brome mosaic virus, 117
elongation factor 1, 117
isoleucine, 63
Turnip yellow mosaic virus
coat protein, 196
wheat germ cell-free system, 196
Type C rat cell lines
coding capacity, 570
particle-negative, 570
particle-positive, 570
sarcoma virus-specific RNA, 510

Unintegrated DNA
M-MuLV, 621

Vaccinia virus
genome, 319
H. influenzae, 319
restriction endonuclease, 319
Varicella-Zoster virus
deoxycytidine, 478
selective inhibition, 478
Vesicular stomatitis virus
glycoprotein, 646
HeLa cells, 637, 646
membrane association, 637
phosphatidylethanolamine, 658
RNA synthesis, 157
transcription defect, 157
ts mutant, 157
wild-type, 157
Viral replicon
BHK-21 cells, 133
polyoma genome, 133

Wheat germ cell-free system
coat protein, 196
TYMV, 196

U.S. POSTAL SERVICE

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

(Required by 39 U.S.C. 3685)

1. TITLE OF PUBLICATION: JOURNAL OF VIROLOGY
2. DATE OF FILING: 10/1/76
3. FREQUENCY OF ISSUE: MONTHLY
3A. NO. OF ISSUES PUBLISHED ANNUALLY: 12
3B. ANNUAL SUBSCRIPTION PRICE: $15.non-mem $60
4. LOCATION OF KNOWN OFFICE OF PUBLICATION (Street, City, County, State and ZIP Code) (Not printers): 1913 EYE STREET, N.W. WASHINGTON, D.C. 20006
5. LOCATION OF THE HEADQUARTERS OR GENERAL BUSINESS OFFICES OF THE PUBLISHERS (Not printers): 1913 EYE STREET, N.W. WASHINGTON, D.C. 20006
6. NAMES AND COMPLETE ADDRESSES OF PUBLISHER, EDITOR, AND MANAGING EDITOR

PUBLISHER (Name and Address): AMERICAN SOCIETY FOR MICROBIOLOGY 1913 EYE STREET N.W. WASH, D.C. 20006

EDITOR (Name and Address): ROBERT R. WAGNER, Univ. of Virginia, Dept.of MICROBIOLOGY,CHARLOTTESVILLE,VA. 22901

MANAGING EDITOR (Name and Address): ROBERT A.DAY, 1913 EYE STREET, N.W. WASHINGTON, D.C. 20006

7. OWNER (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given.)

NAME	ADDRESS
Am. Society for Microbiology	1913 Eye Street, N.W. Wash, D.C. 20006

8. KNOWN BONDHOLDERS, MORTGAGEES, AND OTHER SECURITY HOLDERS OWNING OR HOLDING 1 PERCENT OR MORE OF TOTAL AMOUNT OF BONDS, MORTGAGES OR OTHER SECURITIES (If there are none, so state)

NAME	ADDRESS
NONE	

9. FOR COMPLETION BY NONPROFIT ORGANIZATIONS AUTHORIZED TO MAIL AT SPECIAL RATES (Section 132.122, PSM): The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes: (Check one)

[X] HAVE NOT CHANGED DURING PRECEDING 12 MONTHS [ ] HAVE CHANGED DURING PRECEDING 12 MONTHS (If changed, publisher must submit explanation of change with this statement.)

10. EXTENT AND NATURE OF CIRCULATION	AVERAGE NO. COPIES EACH ISSUE DURING PRECEDING 12 MONTHS	ACTUAL NO. COPIES OF SINGLE ISSUE PUBLISHED NEAREST TO FILING DATE
A. TOTAL NO. COPIES PRINTED (Net Press Run)	6,608	6,540
B. PAID CIRCULATION 1. SALES THROUGH DEALERS AND CARRIERS, STREET VENDORS AND COUNTER SALES	None	None
2. MAIL SUBSCRIPTIONS	5,224	5,841
C. TOTAL PAID CIRCULATION (Sum of 10B1 and 10B2)	5,224	5,841
D. FREE DISTRIBUTION BY MAIL, CARRIER OR OTHER MEANS SAMPLES, COMPLIMENTARY, AND OTHER FREE COPIES	12	
E. TOTAL DISTRIBUTION (Sum of C and D)	5,236	5,841
F. COPIES NOT DISTRIBUTED 1. OFFICE USE, LEFT OVER, UNACCOUNTED, SPOILED AFTER PRINTING	1,372	1,699
2. RETURNS FROM NEWS AGENTS	None	None
G. TOTAL (Sum of E, F1 and 2—should equal net press run shown in A)	6,608	6,540

11. I certify that the statements made by me above are correct and complete.

SIGNATURE AND TITLE OF EDITOR, PUBLISHER, BUSINESS MANAGER, OR OWNER: Robert A. Day, Managing Editor

12. FOR COMPLETION BY PUBLISHERS MAILING AT THE REGULAR RATES (Section 132.121, Postal Service Manual)

39 U.S.C. 3626 provides in pertinent part: "No person who would have been entitled to mail matter under former section 4359 of this title shall mail such matter at the rates provided under this subsection unless he files annually with the Postal Service a written request for permission to mail matter at such rates."

In accordance with the provisions of this statute, I hereby request permission to mail the publication named in item 1 at the phased postage rates presently authorized by 39 U.S.C. 3626.

SIGNATURE AND TITLE OF EDITOR, PUBLISHER, BUSINESS MANAGER, OR OWNER

PS Form 3526 (Page 1) (See instructions on reverse)